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ARCTIC TOUR

NORTHWEST TERRITORIES COUNCIL

JUNE 27, 1972

Panarctic takes pleasure in welcoming you to Canada's
Arctic Islands.

Here is some background and current information which
should help answer some of the questions which may a-
rise during the tour.

1. Flight Plan
2. Current Operations at Panarctic Locations
3. Geological Background
4. Stratigraphic Section Canadian Arctic Islands
5. Sketch Plan Dome Bay
6. Sketch Plan Dumbbells Dome
7. Sketch Plan Helicopter Bay
8. Road Map Fosheim Peninsula
9. Panarctic Aircraft
10. Map of Panarctic's Land Holdings
11. Panarctic 1971 Annual Report

KEN DENTON

f High Arctic
permits
abt.
\$15.20 million

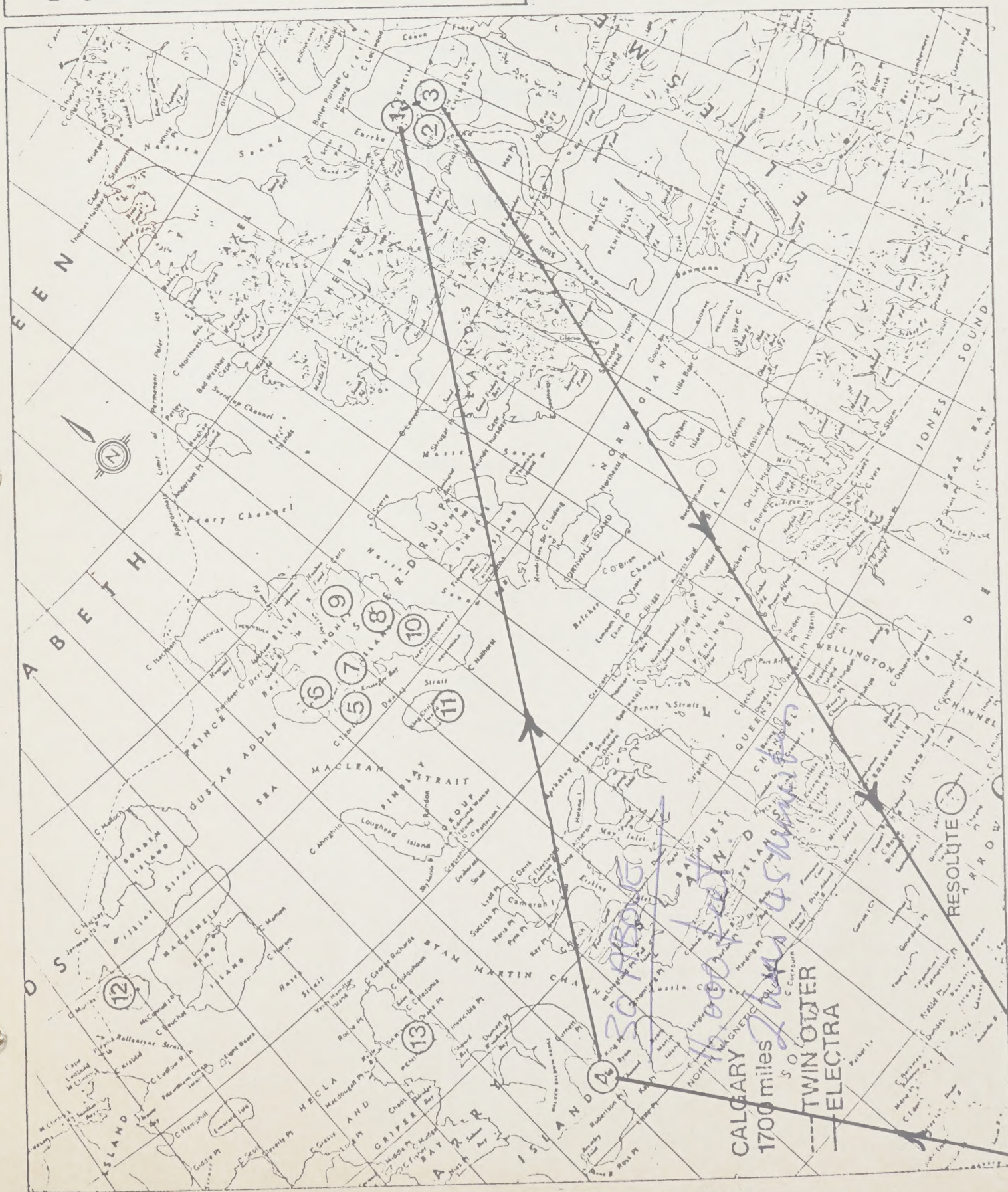
LEGEND:

- ① Eureka
- ② Slide Fiord
- ③ Romulus C-42
- ④ Rea Point
- ⑤ Thor P-38
- ⑥ Dome Bay P-36
- ⑦ Kristoffer Bay G-06
- ⑧ Dumbells E-49
- ⑨ Helicopter J-12
- ⑩ Imperial-Panarctic Hoodoo River
- ⑪ King Christian N-06
- ⑫ Brock I-20
- ⑬ Drake Point

ARCTIC ISLANDS TOUR



panarctic
disco





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PANARCTIC'S

CURRENT OPERATIONS

REA POINT

EUREKA

SLIDRE FIORD

ROMULUS C-42

RESOLUTE BAY

KRISTOFFER G-06

THOR P-38

DOME BAY P-36

GULF DUMBBELLS E-49

GULF HELICOPTER J-12

IMPERIAL HOODOO RIVER

KING CHRISTIAN N-06

BROCK I-20

DRAKE POINT F-16

REA POINT

Panarctic's main staging area at Rea Point on Melville Island was established in 1968. It functions as a communication and transportation centre in support of widespread Seismic and Drilling operations scattered for several hundred miles to the north, east and west in Canada's Arctic Islands.

Deep water is present at the coast a mile south of the camp where ships can unload fuel and drilling supplies each August during the annual sealift. A bladder farm and a steel barge with combined storage capacity for nearly two million gallons of bulk fuel are located at the beach. This will be expanded to four million gallons during the summer of 1972. In addition 5,000 tons of dry cargo (casing, cement, drilling mud, explosives for Seismic) will be brought in from Montreal in August, 1972.

Rea Point has a 5,000-foot airstrip. It is constructed on sand with good drainage and can be used by heavy aircraft (Hercules and Electra) all summer, unlike airstrips at drilling and seismic sites which become soft and unserviceable for heavy aircraft when the active layer (top one or two feet of permafrost) melts each July and August. Aircraft navigational aids in the form of an Omni-range V.O.R. system and a 500 watt non directional beacon make Rea Point the best equipped airstrip in the Arctic Islands.

A hangar large enough to house a Panarctic Twin Otter for servicing is located just north of the camp complex. Adjacent to

the hangar is a large repair shop used for servicing and major overhaul work on Panarctic's fleet of Caterpillar tractors and heavy oilfield trucks.

The camp itself is constructed from converted army barracks. The year round average complement is about 30 men including cooks and camp staff, however accommodation for 60 to 70 personnel is available to handle peaks which occur during seismic mobilization, sealift unloading, major Hercules movements etc.. The camp is electrically heated and power for this and the airstrip is provided by three 250 KW Caterpillar powered AC generator packages.

An important function of Rea Point is to act as a communications centre. A VHF radio system is available for communication with incoming and outgoing aircraft. A camp intercom system allows rapid contact from the Radio Room with Camp Foreman and other key personnel. Single side band radio is used to communicate with the five drilling rigs and various seismic sites. By means of a longhaul beam antennae this same radio is used for direct daily contact with Panarctic head office in Calgary. The Rea Point radio room is manned continuously 24 hours a day for 365 days a year. Weather reports are collected from all sites every hour, a minimum of 12 hours a day. This information is critical in scheduling inter-Island flights by Panarctic's Twin Otters and various other contract aircraft flights chartered by Panarctic. In addition, weather collected from the various other Panarctic sites is passed to the D.O.T. in Resolute Bay. Accurate weather forecasting is then available to Panarctic from D.O.T. in

Edmonton which aids greatly in scheduling, routing and planning of crew change flights in the Islands from Edmonton by Panarctic's Electra aircraft.

EUREKA

Eureka is a joint air weather station operated by the Canadian and American Governments. An excellent Hercules airstrip has been constructed near the weather station. This airstrip is maintained in the summer months by the weather station. Panarctic sealifted 400 tons of drilling supplies and 200,000 gallons of fuel to Eureka in 1970. In 1971 approximately 300 tons of materials were sealifted for Panarctic by the D.O.T. Eureka, Slidre Fiord, Fluker Point, Fosheim and Romulus may all be reached by tracked vehicles or trucks in the winter months. In the summer when rig airstrips become too soft for Electra crew changes, the Eureka airstrip is used. Twin Otters then shuttle passengers and freight from Eureka to and from the rig sites. Panarctic has a small camp at Eureka for this purpose. Another major sealift into the Eureka area is planned for August, 1972.

SLIDRE FIORD

In 1971, one million gallons of diesel and jet fuel were moved in to Slidre Fiord by the tanker Edouard Simard. The location was chosen due to its close proximity to Romulus. Fuel from Slidre Fiord has been moved overland by truck to the Romulus well. The Slidre location is serviced by a Twin Otter strip only and is not

accessible by Hercules. The bladder farm will probably be utilized again in August, 1972, for storing fuel brought in by sea from Montreal.

ROMULUS C-42

Panarctic Romulus C-42 is the first oil discovery well in the Canadian Arctic Islands. Drill stem tests recovered clean crude on February 24, 1972, from a depth of 3,425 feet. Additional tests yielded gas and condensate below 9,000 feet and again below 10,000 feet in April.

The Romulus well is being drilled by Adeco Rig No. 4 which is a unique helicopter transportable rig chosen for two reasons. Firstly, the mountainous and rugged terrain on Ellesmere and Axel Heiberg Islands makes certain proposed wildcat locations inaccessible to any other form of transport. Secondly, when the active layer of permafrost melts in the summer months the terrain on many Islands becomes too soft for loaded tracked vehicles or for heavy aircraft. Again, the helicopter becomes the only possible means of transport.

The rig is designed to drill 8-3/4 inch hole to a total depth of 15,000 feet with 4-1/2 inch drill pipe. The Lee C. Moore 136 foot H-beam Hi-floor mast has a nominal capacity of 1,025,000 pounds. The drawworks is a Helihoist 1500 designed by Ted Houck of Parker Drilling. There are three Halliburton HT 400 mud pumps with Mattco fluid ends each rated at 400 h.p. The mud pumps, drawworks and rotary table are powered by four Caterpillar 340 h.p. diesel engines

with torque convertors on a mechanical compound. The rig has five 125 kw diesel generators. Also included are three 50 h.p. boilers. The Blowout Preventor consists of a 12 inch Series 900 Hydril, a 12 inch Double Ram, Cameron Series 900 Preventor and a 12 inch Single Ram Series 900 Preventor all rated at 3,000 psi. working pressure. Incorporated with the rig is a built-in cementing unit utilizing the three Halliburton triplex mud pumps as cementing pumps.

RESOLUTE BAY

Resolute Bay, a Ministry of Transport base, is located on the south shore of Cornwallis Island and accessible by sea through Lancaster Sound. Since the establishment of weather, seismic and magnetic stations at Resolute, it has become the crossroads of the Arctic Archipelago.

Regularly scheduled aircraft service is available to and from Edmonton and Montreal as well as charter aircraft services within the Arctic Islands.

KRISTOFFER BAY G-06

Kristoffer Bay was the third gas field discovered by Panarctic. Panarctic Tenneco et al Kristoffer Bay G-06 was spudded on November 10, 1971 and penetrated a thick gas sand at an approximate depth of 4,600 feet. In this well, gas flowed to surface on drill stem test through restricted choke at rates of 10 million cubic feet per day on December 8, 1971.

Kristoffer Bay G-06 is suspended with 9-5/8 inch production casing cemented through the gas sand so that large production rates will be possible. A scheduled completion attempt in April, 1972, had to be deferred in order that Comm-Hi Rig No. 1 could drill the Thor P-38 exploration well and get moved back to the mainland before breakup. Production tubing and wellhead equipment are stored on the site.

THOR P-38

Access to this location was made by moving the rig by trucks some 15 miles across the ocean ice from Kristoffer Bay. Ocean ice at this time of year is normally six or seven feet thick and will easily support heavily loaded trucks or Hercules aircraft. The 5,000-foot airstrip one mile inland from the location was constructed last September so that supplies of fuel, casing, cement and drilling mud could be brought in by Hercules aircraft.

The well was spudded on April 6, 1972. An oil show was recorded on April 22 at a depth of 3,879 feet, but was noncommercial. Drilling continued on to a total depth of 6,000 feet. The rig was recently moved across the ice to Dome Bay on Ellef Ringnes Island.

DOMES BAY P-36

Panarctic Dome Tenneco et al Domes Bay P-16 well will be the eighth well drilled by Commonwealth Hi-Tower Rig No. 1 in the past three years.

This well is being drilled jointly in partnership with Dome Petroleum. A 20-mile long road has been cleared across the ocean ice from Thor Island. Terrain in the vicinity of the location was too rugged for building a Hercules airstrip, however, a good 6,000-foot long airstrip was built on ice of Dome Bay six miles south of the proposed well site.

A rapid overice and overland move was made from Thor Island during May. (See attached map) It took just 14 days from abandonment date at Thor P-38 to spud in date at Dome Bay P-36, the fastest move ever made by Panarctic. Drilling is now proceeding at an approximate depth of 5,000 feet.

Commonwealth Hi-Tower Rig No. 1 which drilled the Thor P-38 well is the first rig contracted by Panarctic back in early 1969. Rig No. 1 was recently upgraded to make it capable of drilling 8-3/4 inch hole to 12,000 feet.

The rig has diesel electric power, four G.E. generator packages powered by four 400-hp Caterpillar diesel engines. Mud is handled by two National K-500 duplex pumps rated at 500 hp. each. Draw-works is a National 80B rated at 1,000 input hp and powered by one d.c. motor. The mast is a Lee C. Moore modern style hi-floor design with an overall height of 131 feet. B.O.P. stack consists of 12-inch Series 900 Double Ram Shaffer, Single Ram Shaffer and Hydril all rated at 3,000 psi. working pressure.

GULF DUMBBELLS E-49

Panarctic-Gulf Dumbbells E-49 was spudded on January 11, 1972

and reached a total depth of 11,182 feet on May 12. The well was drilled in good time to 8,000 feet, however, a severely fractured shale caused considerable hole sloughing trouble below this depth. It was finally necessary to increase mud weight to 11.5 ppg. and increase viscosity to control sloughing shale. This drastically slowed drilling time below 8,000 feet.

The rig was then moved 20 miles overland (see attached map) using five oilfield trucks to the Panarctic Gulf Helicopter J-12 location.

GULF HELICOPTER J-12

This proposed 12,000-foot wildcat located some 20 miles north of Dumbbells E-49 is the third well to be drilled on Panarctic acreage farmed out to Gulf Oil Canada Ltd. Drilling is presently proceeding at an approximate depth of 2,000 feet.

Due to rough and rolling terrain in the vicinity of both Helicopter and Dumbbells, airstrips were located several miles away from the drilling sites. These had to be built last August and September when dirt work and levelling was possible before the ground froze. Drilling supplies for the Helicopter well are presently being flown in by Hercules aircraft to the airstrip situated 5 miles west of the location.

Under an operating agreement with Gulf which had no rigs, aircraft or equipment in the Arctic Islands, Panarctic has undertaken to drill these three wells and possibly one more, in the interests of getting the work done quickly and economically.

The Contractor at Helicopter J-12 is Parker Rig No. 97 with a National 80B rated to 14,000 feet with 5-inch drill pipe. The mast is a 133-foot modified Pyramid having a normal capacity of 875,000 pounds. Power is provided by three 500-hp Caterpillar diesels driving through a mechanical compound. There are two Emsco 750 triplex pumps.

The rig shelter is of different design than any other rig working for Panarctic. The 250 kilowatt diesel-engine powered generators and two 100 hp boilers are each housed in Hercules sized metal buildings. The rig floor and mud system is housed in a sheet metal enclosure.

This rig was originally brought in from Houston by King Resources to Bathurst Island in 1970. After drilling two wells for Sun Oil, it was taken over by Panarctic Oils in December, 1971.

IMPERIAL HOODOO RIVER

Panarctic and Dome made a large farmout of the Hoodoo-Dome structure to Imperial Oil Limited in 1971. Hoodoo River will be the second well to test this large salt dome structure. The first was Panarctic Hoodoo Dome H-37, a dry hole drilled in 1970.

Imperial contracted Parker Rig No. 98 and flew it in by Hercules aircraft during March and April from Russell Island.

Rig No. 98 is a National 100M rated for drilling to 15,000 feet. Originally brought in by ship from Houston in 1970, after drilling two wells for Sun Oil on Bathurst Island in 1971 and one on Russell in 1972, Imperial took the rig over temporarily for one well.

KING CHRISTIAN N-06

The King Christian gas field was discovered on October 25, 1970 when the D-18 well blew wild and caught fire.

The well burned out of control for three months. Meanwhile Commonwealth Hi-Tower Rig No. 2 had been set up 700 feet away and directionally drilled the D-18A relief well. On January 24, 1971, the D-18 well was brought under control and sealed off by pumping water, mud and then cement down the relief well. The relief well was then deepened to evaluate thickness of the gas sand. It subsequently was completed with small casing to serve as a fuel well for further drilling.

During the summer of 1971, a new larger Commonwealth Hi-Tower Rig No. 3 was brought in and drilled a step-out well, King Christian N-06. It was located approximately 1-1/2 miles southeast of the original discovery well.

The airstrip is located immediately adjacent to the King Christian N-06 well. This well is capable of high flow rates so a Y-shaped well-head equipped with 4-inch valves on each side has been installed. The well has been tested at flow rates up to 188 million cubic feet per day thus qualifying it as one of the best gas wells in Canada.

During the flare test today the well will be flowed at rates up to 150 million cubic feet per day. Observation of the small decrease in pressure on the wellhead gauge even at this high producing rate will give an indication of the high permeability of the producing sand.

BROCK I-20

This is the second well to be drilled on Brock Island. Brock C-50, some 15 miles south reached a total depth of 12,996 feet on March 17.

The rig was then moved overland to Brock I-20 which was spudded in April. Drilling is now proceeding at an approximate depth of 9,000 feet.

Commonwealth Hi-Tower Rig No. 3 is the newest and best equipped rig presently drilling in the Arctic Islands. Power is provided by four 400 h.p. Caterpillar diesel engines driving General Electric d.c. generators and two 400 h.p. Caterpillar diesels driving a.c. generators. D.C. power is used for drawworks, pumps and rotary table. A.C. power is used for camp heat and rig accessories. Drawworks is a National 80E powered by two 750 h.p. d.c. motors. Two National 80 h.p. triplex mud pumps each driven by a 750 d.c. electric motor. Mast is a Lee C. Moore 142-foot hi-floor rated nominal capacity of 850,000 pounds. B.O.P. stack consists of single Shaffer, double Shaffer and Shaffer bag-type annular preventor size 13-5/8 inch all rated at 5,000 psi. working pressure. The latest type of controls are provided featuring remote electric control panel in the rig doghouse in addition to hydraulic controls in the accumulator house. The latest concepts in mud handling have been incorporated. Two large mud tanks are fitted with pre-hydration tanks, electric mixers, degasser, desander, desilter and centrifugal pumps to change the suction of the high pressure mud pumps.

Except for drawworks, mast, blowout preventors, pumps and motors, the rig is Canadian made. The large nylon-covered rig shelter was built by North West Tent in Edmonton. All welding and fabrication was done in Edmonton including the contractor-designed pipe racks which double as pipe pallets when moving by Hercules. The two 100-h.p. steam boilers were built in Edmonton.

DRAKE POINT F-16

Panarctic Tenneco et al POR Drake F-16 was spudded on May 19, 1972 and is being drilled by Commonwealth Hi-Tower Rig No. 2. Total depth of 4,850 feet was reached on June 7. A good gas sand was encountered at an approximate depth of 3,600 feet. Completion operations are now in progress and a test of the well's absolute open flow potential will be made later this month.

Rig No. 2 is a small helicopter transportable rig capable of drilling 6-1/4 inch hole to a depth of 6,000 feet with 3-1/2 inch drill pipe. Rig No. 2 has proven to be extremely versatile and was used in the drilling of the Drake Point and King Christian directional wells during well killing operations.

The main rig components are a Cardwell A150K drawworks, a Cardwell Skyhorse 90-foot mast with 150,000 pound capacity and a small mud pump rated at 175 h.p..

Drake Point was the first gas field discovered in the Arctic Islands. Two shallow gas zones at depths of 3,600 feet and 4,500 feet, respectively, were discovered in 1969. A deeper gas zone was encountered at 10,000 feet in 1970. The original Drake Point dis-

covery well blew wild for one year from September 1960 to September 1970.

The remains of the ice cone at Drake Point L-67 is six miles west of the new Drake F-16 step out exploration well. The ice cone is still 50 feet high but is expected to completely melt away by this fall, three years after it started building up from salt water spraying out of the wild gas well.

The wild well itself was cemented off last fall. The second directional relief well which finally killed the gas flow in September, 1970, has been abandoned. The first directional relief well is cased with 7-inch casing to 3,600 feet (vertical depth) and could be completed as a gas well. The Hercules airstrip which served the original Drake Point well is 3 miles east, halfway to the Drake F-16 well.

GEOLOGY OF THE ARCTIC

BACKGROUND INFORMATION

Oil and gas are found in sedimentary basins which, over geological eons of time, have collected layer after layer of sandstone, shale and carbonate rock derived from prehistoric oceans and adjacent land masses. In North America, almost all important oil and gas resources are contained in a major sedimentary basin extending from the Gulf of Mexico through the middle and Western United States, and through Western Canada to the mouth of the MacKenzie River and on into the Canadian Arctic Islands to the northern tip of Greenland.

The Great Canadian Precambrian Shield lay to the south and east and geologists postulated another possible source of sediments in earlier times in the area of the North Pole. Sediments from those exposed portions of the earth's crust poured into the area of the present Arctic Islands to form a basin much more similar to that in the Gulf of Mexico than to the portion of the sedimentary basin in Western Canada. Surveys recorded very thick sections, up to several thousand feet, of highly porous and permeable sands which could form excellent oil and gas reservoirs. Thick sections of porous carbonate rocks, including coral reef type deposits, were also observed and measured. Great thicknesses of black bituminous shales which could serve as cap rock and provide ample sources for hydrocarbons are present. Also present are excellent reservoir, source and cap rocks, and varied types of geological structural features which could serve to trap oil and gas. For some reason,

fortuitous for the oil explorer, the bending and wrinkling of the earth's crust in the Arctic Islands formed very large structural features, much larger than customarily found in other parts of Western Canada. This factor of size was a necessary ingredient in arousing the interest of the oil and gas industry since any discovery, to be economic, would have to be very large.

Ground exploration of the area was surprisingly easy. The Arctic Islands, contrary to common belief, are not ice covered wastes, difficult to observe and explore. They are mostly of monotonous low relief and are subjected to extremely low precipitation (2 1/2 inches annually) so that most of the land area of the Islands is exposed for two or three months during the summer of each year. Only in the Eastern Islands in the area of Devon, Axel Heiberg and Ellesmere is the terrain very mountainous. A substantial portion of the land is covered by snow and glaciers the year round. Glacier areas in fact, are said to constitute only 8% of the land areas of the Islands.

Other factors have also aided exploration. The land surface in the Islands has not been overburdened with glacial residue and there is little noticeable vegetation cover. As a result bed rock geological formations lie mostly exposed greatly simplifying geological exploration and interpretation. Aerial photographs clearly show the various geologic formations; geologic maps of the highest quality can be made from aerial photographs with only minimum field checking by surface inspections.

A large amount of regional information on the Arctic Islands has been developed in recent years principally by the Geological Survey

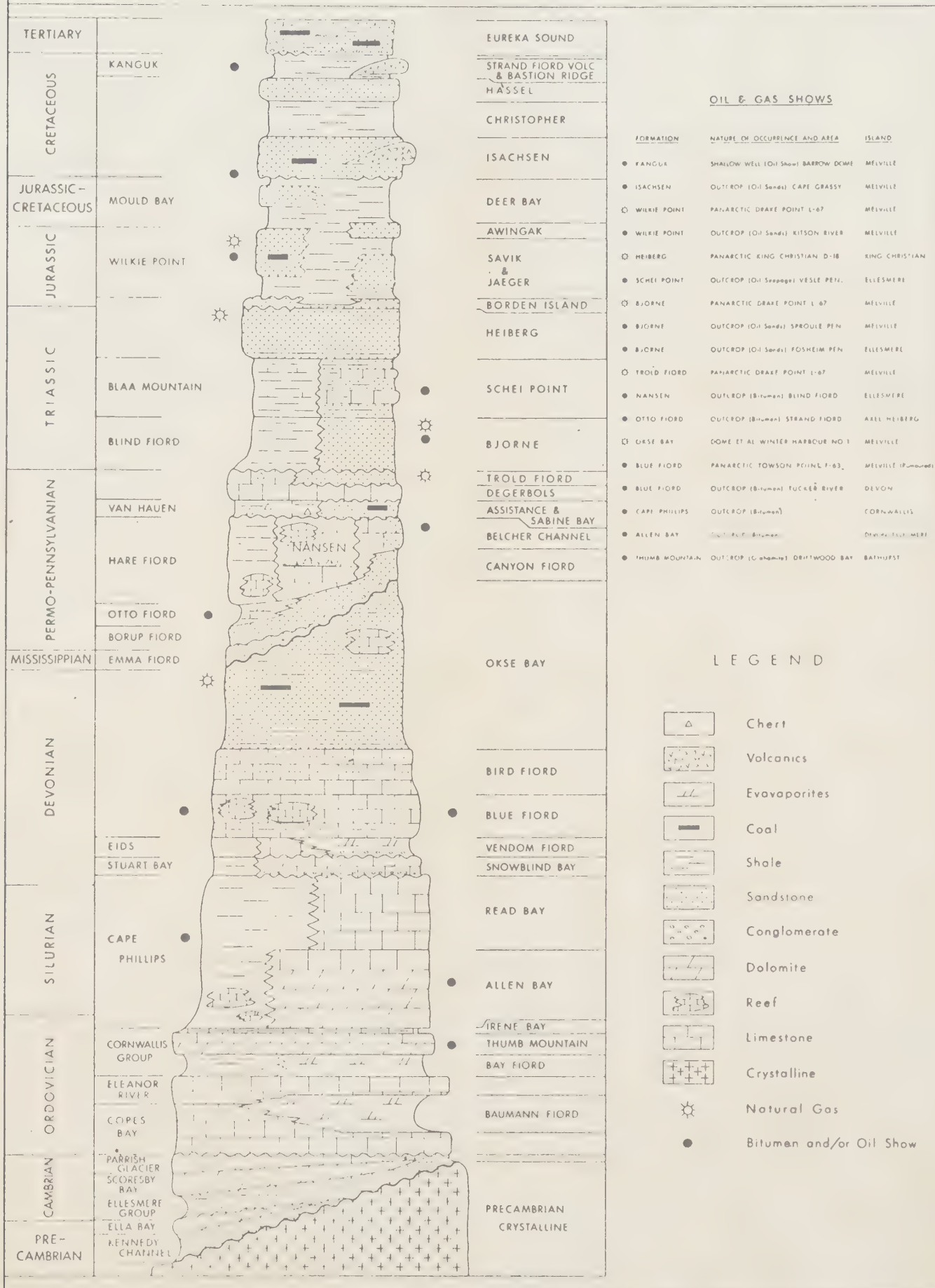
of Canada and the Dominion Observatory. Aerial stereo-photographic coverage is better than for many parts of mainland Canada and detailed maps prepared from these photographs are excellent. Other information includes reconnaissance geological work, regional seismic, gravity, and aerial magnetometer surveys and measurement of ice thickness and water depth.

Favoured with so many encouraging geological indications of immense potential resources, the oil and gas industry moved in to the Arctic Islands in search of oil and gas.

GENERALIZED COMPOSITE STRATIGRAPHIC SECTION CANADIAN ARCTIC ISLANDS

OILWEEK December 20, 71

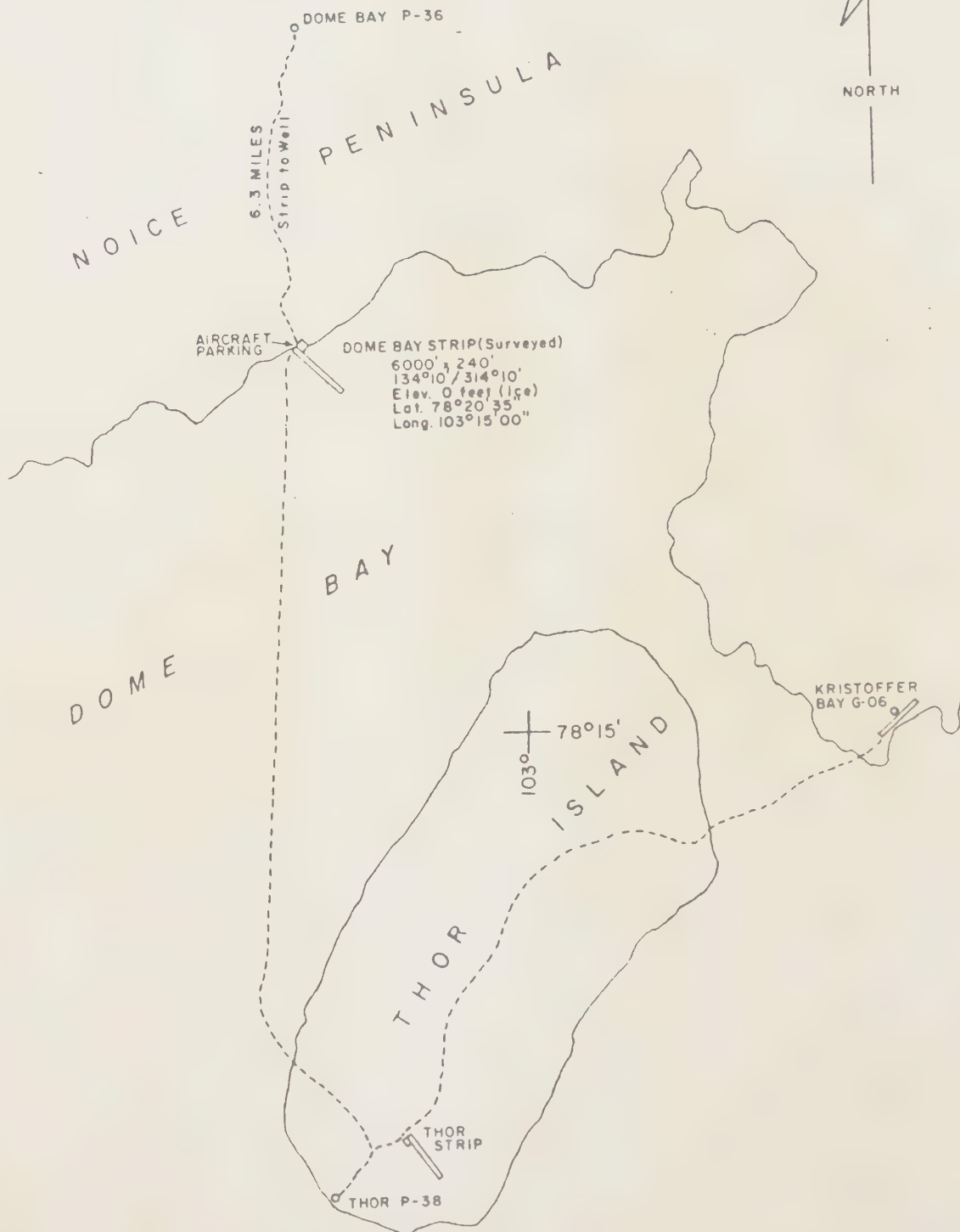
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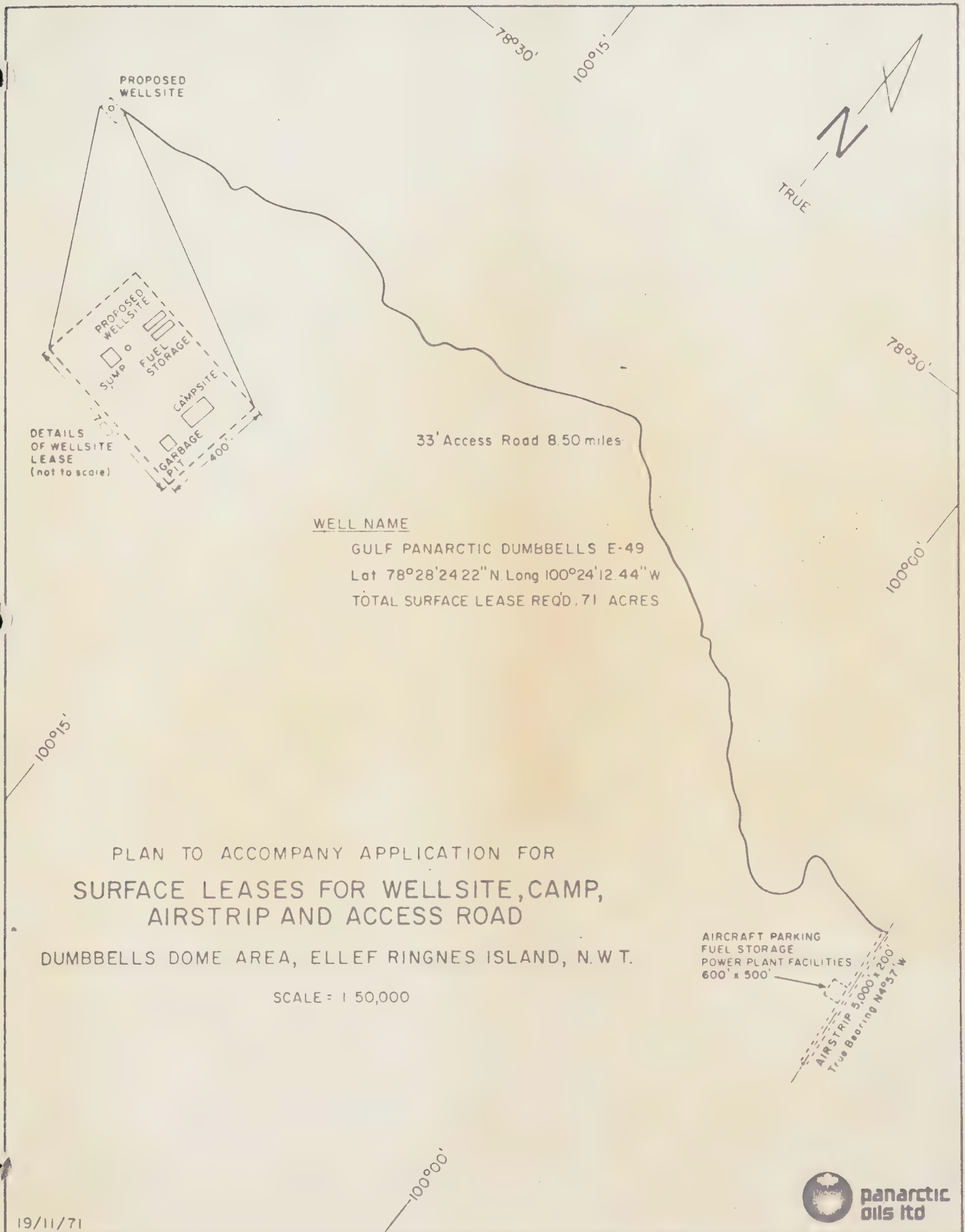


SKETCH PLAN OF
PANARCTIC FACILITIES
IN DOME BAY AREA

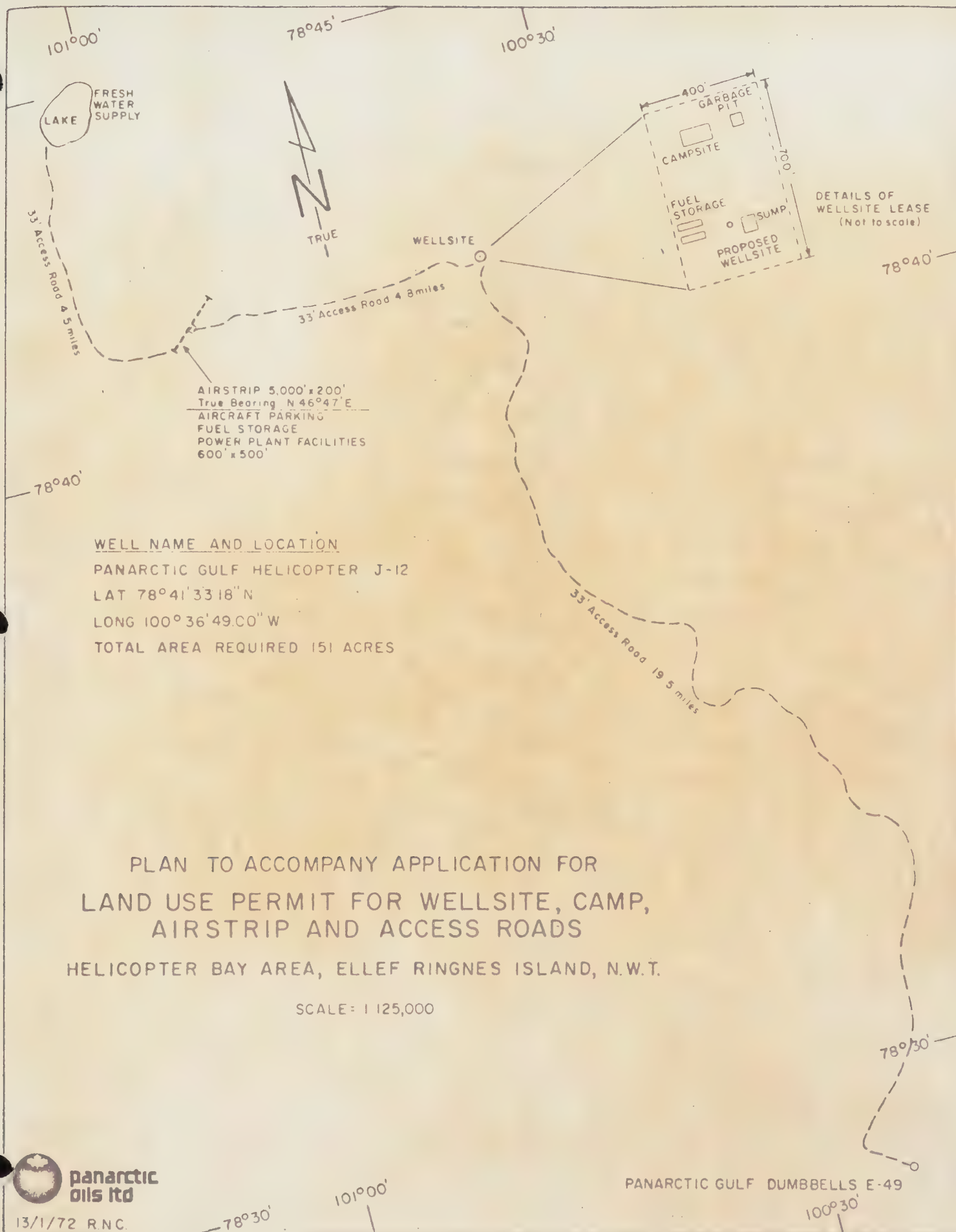


103°
78° 30'





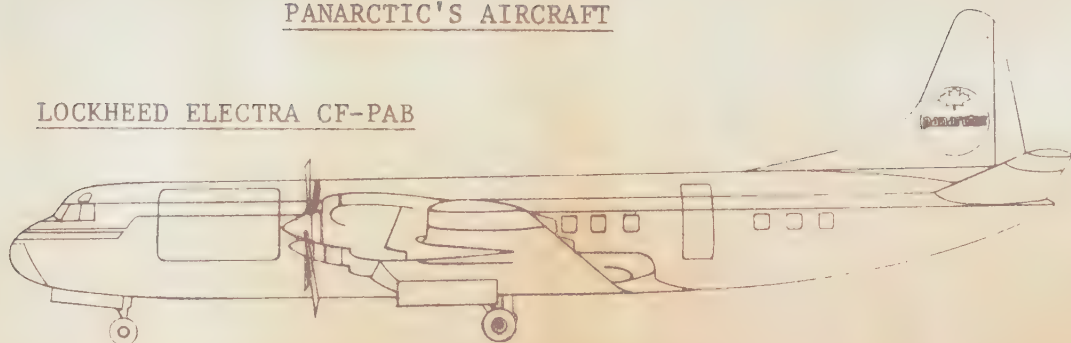
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PANARCTIC'S AIRCRAFT

LOCKHEED ELECTRA CF-PAB



Panarctic's Lockheed Electra (type L-188 freighter configuration) was formerly in service over continental U.S.A. with Northwest Orient Airlines. Panarctic acquired this aircraft under a lease-purchase arrangement and completed the purchase December 31, 1971. The plane is mainly used for North-South support in effecting crew changes and re-supplying Panarctic's bases of operation in the Arctic Islands.

The Electra is powered by four turbo-prop engines and burns turbo-fuel, JP-1.

STATISTICS

Cruising Speed	350 mph
Cruising Altitude	18,000 to 24,000 pressurized
Range	2,000 miles
Weight	116,000 lbs. (24,000 lbs. pay- load)
Load	90 passengers with full seating (Panarctic usually flies 30 passengers plus freight or 24,000 lb. freight or any combination)
Fuel Capacity	5,200 gallons
Crew	four
Cost of Operation	\$3.60 per mile
Equipment	Auto-pilot, Flight Director, ADF, ILS, VOR, VHF, OHF, Radar

Last year the Electra flew over 600,000 miles carrying some 2,100 tons of freight and 7,350 passengers between Calgary-Edmonton and Panarctic's Arctic bases.

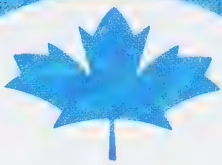
DE HAVILLAND OTTERS CF-PAE AND CF-PAT

panarctic has two Otters, "Wag" and "Tug", which are completely dependable with regard to the Arctic. These aircraft are used for the vital purpose of moving both the and several other loads within the 1000 ft. radius of the very narrow ice. The Otters are able to land and take off in short distances. The Otters are aircraft are equipped with skis and are able to land on snow or ice. The Otters are also equipped with a soft landing gear and landings are made.

DESCRIPTION

Maximum Speed	110 mph
Maximum Altitude	10,000 ft.
Range	1,000 miles
Weight	11,500 lbs.
Length	22 ft. 6 in.
Wing Span	32 ft. 6 in.
Height	11 ft. 6 in.
Engine	1 x Pratt & Whitney R-1300
Cost of Operation	\$100.00 per hour
Armament	None

Panarctic's pilots must continually rely upon their sense of direction, a magnetic compass or radio compass as practically all flights take place North of the North magnetic pole. The Otters are also equipped with a compass.



**panarctic
oils ltd**

1971 annual report



The Sir John Crosbie weathers a summer blizzard, August 29th, while unloading cargo in a record 2 days at Rea Point.



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**panarctic
oils ltd**

Incorporated May 27, 1966
By Federal Letters Patent

Head Office

703 - 6th Avenue S.W.
Calgary 2, Alberta



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The Ones Who Hunt Oil In The Islands In The Land Of The People™

President's Report



CHARLES R. HETHERINGTON

Panarctic opened the year 1971 with the successful killing of the wild gas discovery well on King Christian Island and it closed the year with a new discovery of natural gas at Kristoffer Bay on Ellef Ringnes Island. Between these events, Panarctic completed the drilling of five exploratory wells that it was obligated to drill. Nine other exploratory wells of which eight were Panarctic obligations were completed or were being drilled on Company lands by farmees. Panarctic also arranged for the financing of an additional \$100 million to cover forthcoming exploration programs. Shortly after the close of the fiscal year the Company's Romulus C-42 well on Ellesmere Island drill stem tested crude oil. These occurrences are the principal highlights of this fourth annual report of the Company.

The relief well which killed the King Christian wild gas well was deepened to evaluate the productive gas sand and was completed as a producing gas well. A two-mile stepout well was then drilled to satisfy the deeper exploratory drilling obligation and to provide a confirmation well. This well, Panarctic Tenneco et al King Christian N-06, completed in the King Christian sand, ranks as one of the largest gas producers in North America, actually flowing at rates up to 188 million cubic feet per day.

It is interesting to note that fuel for the drilling of this stepout well was supplied by natural gas piped two miles from the completed relief well, making this the most northerly practical use of natural gas in the world. The gas is of pipeline quality in its natural state so no processing was required.

Panarctic now has almost fulfilled its obligations to drill specific wells. It still retains options to drill certain blocks to earn additional acreage. Accordingly, well locations can be made having regard to the most promising geological prospects and the need to evaluate Company land holdings prior to selecting leases. There are now nine drilling rigs in the Arctic Islands of which five are under contract to Panarctic and two are under contract to others drilling on Panarctic lands in pursuance of this program.

Last year's report stated that interest expressed by purchasers of natural gas both in Canada and the United States suggests that Arctic Islands gas may be marketable much sooner than had been generally expected. A big step in this direction was made when Panarctic entered into a Gas Development Arrangement with four United States gas companies, Tenneco Oil & Minerals, Ltd., Columbia Gas Development of Canada Ltd., Texas Eastern Canada Ltd. and Northern Natural Gas Company, under which \$75 million will be made available for gas exploration on Panarctic lands over the next five years. When a market outlet is assured, additional funds will be provided as requested by Panarctic for the drilling of all development wells required to deliver gas in marketable quantities from Panarctic lands. The expanded exploration program will greatly enhance the prospects for discovering the threshold reserve of natural gas necessary to support an economic pipeline outlet to market.

In consideration of monies expended, the gas companies will have the first right to negotiate the purchase of gas developed under this program and declared available for export by the National Energy Board and the Government of Canada.

In the result Panarctic will be provided with large amounts of exploration capital without diluting its stock equity and without relinquishing Canadian ownership or control. In the process of drilling for gas, Panarctic's 60 million acres will be more intensively explored than Panarctic could otherwise do with its present exploration budget, and in the process the chances of finding crude oil will be materially enhanced.

In addition to the new financing under the arrangement just described, Panarctic shareholders subscribed pro rata to a \$26 million expansion of the Company's capitalization which will carry Panarctic's basic exploration program through the year 1972.

Panarctic's land holdings of more than 60 million acres are distributed over a vast region extending for some 1,000 miles from Banks Island in the southwest to Ellesmere Island in the northeast. To put this into perspective with exploration in other parts of Canada: Panarctic's holdings are greater than all oil and gas lands issued in British Columbia or two-thirds of the total lands issued in Alberta where more than \$3 billion have been expended by the oil and gas industry over the past 25 years. Panarctic holds its acreage under Canada Oil and Gas Permits out of which Panarctic must select Canada leases as the Permits expire from time to time commencing in 1975. Since Panarctic's large and widely distributed land spread is underlain by a great variety as well as a large number of geological prospects, Panarctic has been seeking means to increase the pace of its exploration over the next five years.

Farmouts to other companies are a means of financing regularly employed in the oil and gas industry to obtain additional exploration work over and above that possible or even desirable out of a company's own financial resources. In such farmouts, partial interests in selected land areas are traded for commitments to undertake additional exploration work. Panarctic has availed itself of this means of financing and has made farmout arrangements with six companies. These farmouts will produce a total of \$50 million to \$75 million of additional work. The consideration for this work involves relinquishing less than 6% of Panarctic's gross land holdings and Panarctic will still retain an average of 52% of its original interest in the lands farmed out. In each instance Panarctic

has evaluated its land holdings and has obtained dollar work commitments compatible with the indicated value of the land interests being relinquished. In addition to obtaining valuable geological information and land evaluations from farmout drilling, Panarctic hopes that the farmee will discover oil and gas since Panarctic will still have a substantial retained interest in any discoveries.

In summary, with capital from the Gas Development Arrangement, from farmouts, and considering a continuation of Panarctic's own exploration program, over \$200 million is slated for exploration on Panarctic lands over the next five years. While this is a large expenditure it is still a relatively small number of dollars per acre when compared to exploration budgets spent in Western Canada over the past 25 years. However, in the Arctic Islands the geological features are much larger and the potential reservoirs are much thicker than in Western Canada. Further, because the land surface is largely free of vegetation and because rock formations outcrop at the surface, many of these structural features are evident during the two or three summer months when the land is bare of snow. These favourable factors distinguish the Arctic Islands from Western Canada and indicate that exploration in the Arctic Islands could be less costly per acre explored and hopefully more productive.

Last summer field parties studied the geology of the central and eastern islands from Melville to Axel Heiberg. Geophysical crews shot almost 1,400 miles of seismic line. Gravity data from over 10,000 stations were collected in selected areas. Additional geophysical data were obtained by trades with other companies. This work not only provided valuable regional information but developed specific drilling locations for wells now drilling and for a number of wells to be drilled next year.

Last fall Panarctic conducted the largest and most successful sealift ever carried out in the High Arctic, employing three ships to deliver 15,000 tons of supplies including 3 million gallons of fuel to Ellesmere Island and Panarctic's Rea Point base. It is appropriate to acknowledge the invaluable assistance

of the Canadian Coast Guard icebreaker fleet in making such an operation possible. This year ice conditions were less severe than at any time in recent history. However, this will not always be so. More and larger capacity icebreaker support will be required as Arctic operations expand and as shipping requirements extend into the more icebound northwesterly islands.

The Company-owned Electra and Twin Otter aircraft operated to near capacity servicing and resupplying the Company's contract drilling rigs and geological and geophysical parties. In addition, contract aircraft were widely employed, principally in moving drilling rigs from one location to another and in keeping them furnished with supplies and fuel. Communication facilities were upgraded and expanded although the need for basic improvement still remains.

More than ever during 1971, Panarctic's operations have effectively reinforced the Canadian presence in the Arctic Archipelago. Perhaps even more importantly, Panarctic is helping to turn a remote and barren region into an important economic asset for Canada.

The Company enlarged upon its program for the protection of the Arctic environment. A special task force including outside consultants was formed to check out, photograph and report on all locations where the Company has operated to date. Where required, cleanup operations were undertaken after which the task force repeated its inspection. By this procedure it is hoped to minimize ecological damage and to leave the areas of activity in substantially the same condition that existed prior to use.

The Company's program to employ Eskimos and other northerners underwent changes because of the transportation problems involved between Panarctic jobsites and the isolated settlements, all of which are quite far south of Panarctic's area of operations. In order to make the system more workable and also to provide employment for more northern residents, Panarctic instituted special company aircraft flights to Pond Inlet and Arctic Bay. While only in its early stages, this undertaking appears to be working well and is providing meaningful employment. It is hoped that this effort will develop a pool of trained northern residents for the operation of field facilities when Arctic oil and gas go into production.

This year's Report includes a page of pictures of Company Directors, eleven of whom are original directors having served since formation of the Company as an operating entity in the fall of 1967. Mr. H. M. Pickard, Executive Vice-President of Canadian Pacific Investments Limited, who also served as one of the early directors, has resigned and has been replaced by Mr. R. W. Campbell, Chairman of the Board of PanCanadian Petroleum Limited. Mr. Campbell brings with him a wealth of experience from a lifetime in the oil and gas industry in Western Canada. During the year the membership of the Board of Directors was expanded to eighteen with the appointment of Mr. H. Basil Robinson, Deputy Minister of Indian Affairs and Northern Development, Mr. J. Austin, Q.C., Deputy Minister of Energy, Mines and Resources, and Markoosie, a Northerner who is an experienced Arctic aircraft pilot.

The year under review reflects an acceleration of Panarctic's exploration activities in the Arctic Islands. This is directly attributable to increased finances and to an accumulation of experience, the development of expertise, and a familiarity with Arctic conditions which now make it possible to proceed with increasing efficiency.

Activities and achievements in the year to come promise to be even more encouraging, and sincere thanks must be extended to all Panarctic personnel and the contracting companies who have made this a year of considerable achievement.



Charles R. Hetherington
President

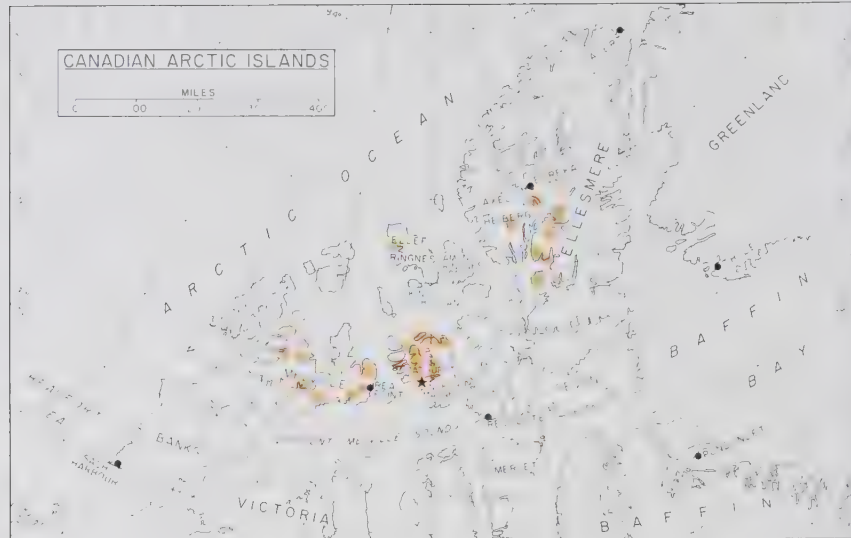
February 28, 1972
Calgary, Alberta, Canada

Exploration



G. P. CROMBIE

Vice-President Exploration



Geological Field Investigations 1971

During 1971 Panarctic continued to add not only to its geological knowledge of the Arctic Islands, but also to its experience in using the latest and most advanced exploration tools to meet the conditions unique to the Arctic. In the process of the Company's exploration staff and contracting firms have emphasized and enlarged upon certain new techniques and refinements in exploration methods.

Seismic crews shot 1,379 miles of line on six islands navigating hundreds of miles over sea ice.



Essentially, exploration for oil and gas is a process of identifying targets. In the Arctic Islands Panarctic started with the body of knowledge assembled chiefly by the Geological Survey of Canada, other Government agencies, and J. C. Sproule and Associates.

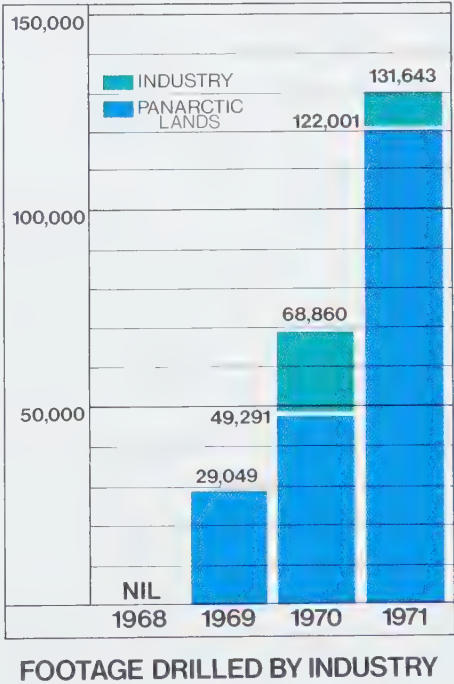
First to be studied was regional geology, which provided a classification of prospective areas. Surface geology revealed many large structures of types which elsewhere contain oil and gas. These are potential targets. Where sedimentary rocks are exposed, geologists can determine their nature, thickness and sequence. In the Arctic, however, surface geological work is far from complete and last year surveys were conducted on a number of islands. Since sedimentary rocks are exposed at the surface throughout large areas of the Arctic Islands, surface mapping by photogrammetry is most effective and is used extensively. Under the sea and where surface beds mask the configuration of deeper strata, geophysical tools must be used to determine whether there are structures which could be targets for the drill. Even where there is surface expression of a structure, this may be misleading as to the location of the subsurface structure itself and hence inadequate for purposes of selecting drilling locations.

The most accurate tool for selecting drilling locations is the seismograph, but it is also the most expensive, and like everything else seismic work is even more expensive in the Arctic. Panarctic therefore uses gravity meter surveying more than is usual in other parts of Canada. During 1971, measurements were made at 10,292 gravity stations, located in areas throughout the Islands.

Where gravity surveys give indications of structure which appear to be worth examining in a more precise way, the next step is seismic work. In addition to defining subsurface structures, seismograph work is helpful in predicting the depths at which various formations will be encountered. In 1971 two seismic crews shot 1,379 miles of line on six islands. An additional 150 miles of data were acquired last year by trade.

Panarctic and its seismic contractors have had to experiment and adjust operating and interpretive techniques in order to make the most meaningful use of seismograph shooting. It has been necessary to learn how to apply proper allowances for the effect of varying depths of permafrost on seismograph readings. It has been necessary to develop similar expertise where seismic has extended from the land onto the sea ice which drastically complicates interpretation. In addition, the presence or absence of permafrost under the sea bed contributes distortions.

Seismic crews have learned how to contend with Arctic conditions for long periods in total darkness as well as in daylight hours. This has made it possible to obtain more seismic information and to establish drilling locations at an increasing rate.



Fosheim Rig - Atop a 2,000-foot mountain one of the world's most northerly wildcats, Panarctic Fosheim N-27 on Ellesmere Island, reached a total depth of 14,022 feet to qualify as the deepest well yet drilled in the Arctic Islands

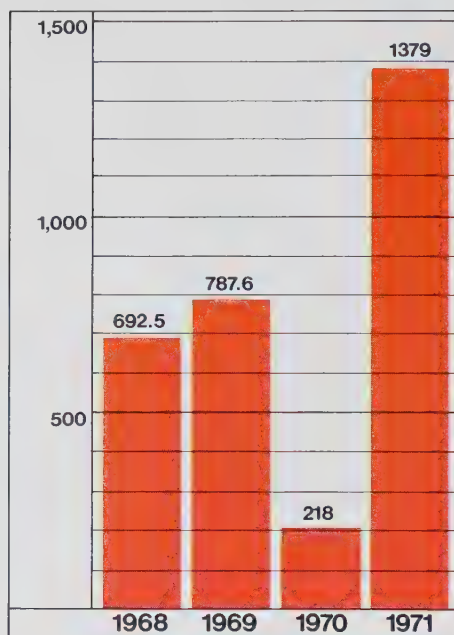
The seismic program conducted on Brock Island last April is an interesting case in point. In order to place seismic crews and equipment on Brock Island, advance equipment was flown into Mackenzie King Island in February and a 50-mile trek across sea ice was made to Brock Island, employing tracked vehicles to manoeuvre through difficult ice conditions. This advance party prepared a Hercules airstrip on Brock Island to receive the seismic party.

Seismic shooting on Brock Island was completed in April, and the crew set off for its next assignment on Eglinton Island. This required a 200 mile journey, almost all over sea ice, touching land on Prince Patrick Island in order to pick up fuel.

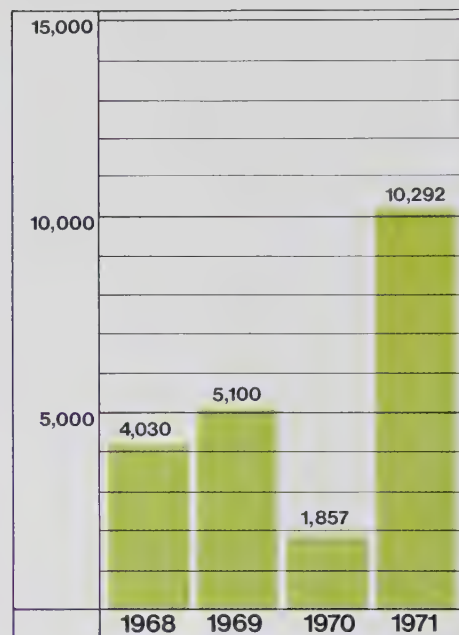
The seismic crew moving largely out of sight of land used celestial navigation to locate positions. The move began on April 20 and the Eglinton Island destination was reached on May 1. This is by far the longest seismic crew move over ice to date, and it proved conclusively that this kind of operation can be conducted without serious difficulty.



Panarctic Tenneco et al Kristoffer Bay G.06 is the Company's third major gas discovery. Located 50 miles north of King Christian Island it has a substantial thickness of gas sand at the 5,300-foot level



MILES OF SEISMIC (PANARCTIC)



GRAVITY STATIONS (PANARCTIC)

Muskox (*Ovibos moschatus*) generally measuring 59 inches at the shoulder, 96 inches in length and weighing up to 600 lbs., the wild ox of the Arctic plain survives on low vegetation, lichens and moss.



In 1971 six wells were completed by Panarctic and at year end two wells were drilling. Shortly after year end Panarctic spudded two more wells. Seven other wells were completed and at year end two wells were being drilled by Farmees on Panarctic lands. Two other wells were drilled in the Arctic Islands by others off Panarctic lands. These wells are:

1971 Arctic Islands Drilling

WELL NAME	Island	T.D.	Status
Drilled by Panarctic			
Panarctic Amund Central Dome H-40	Amund Ringnes	11,030	D & A
Panarctic Fosheim N-27	Ellesmere	14,022	D & A
Panarctic Deminex Garnier O-21	Somerset	6,515	D & A
Panarctic Tenneco et al King Christian N-06	King Christian	11,020	gaswell drilling
Panarctic BP Skelly Tenneco et al Brock C-50	Brock		D & A
Panarctic Deminex Cornwallis Central Dome K-40	Cornwallis	10,052	rigging up
Panarctic Gulf Dumbbells E-49	Ellef Ringnes		gaswell
Panarctic King Christian D-18A	King Christian	2,779	moving in
Panarctic Romulus C-42	Ellesmere		gaswell drilling
Panarctic Tenneco et al Kristoffer Bay G-06	Ellef Ringnes		
Drilled by farmees on Panarctic lands			
Sun KR Panarctic Kitson R. C-71	Melville	9,075	D & A
Sun KR Panarctic Allison R. N-12	Bathurst	11,761	D & A
BP et al Panarctic Hotspur J-20	Vanier	12,584	D & A
BP et al Panarctic Satellite F-68	Prince Patrick		drilling
Sun KR Panarctic Skybattle Bay C-15	Loughheed	12,000	D & A
Sun KR Panarctic Young Inlet D-21	Bathurst	6,058	D & A
Elf et al Storkerson Bay P-14	Banks	6,719	D & A
Sun Panarctic Russell H-92	Prince of Wales	6,020	D & A
Imperial Panarctic et al Devon E-45	Devon		drilling
Other wells drilled in the Arctic Islands			
Elf Wilkins E-60	Mackenzie King	11,140	D & A
Elf Jameson Bay F-31	Prince Patrick	8,327	D & A

There are now five drilling rigs under contract to Panarctic. At year end, one was drilling ahead at the discovery well at Kristoffer Bay on Ellef Ringnes Island, one was drilling the first of two wildcats scheduled for Brock Island, one was rigging down on the Fosheim abandonment on Ellesmere Island and had just started a 40 mile overland move to the Romulus location, and one was rigging up on the Panarctic Gulf Dumbbells location on Ellef Ringnes Island. The fifth rig was subcontracted out for the drilling of the Imperial Panarctic wildcat on Devon Island, but has now been returned to Panarctic for the drilling of a well on the western shore of Amund Ringnes Island on lands farmed out to Gulf Oil Canada.

Discoveries The King Christian D-18A relief well was deepened to evaluate the gas sand from which the original King Christian well blew out. Nearly 500 feet of high-quality sand reservoir above the gas-water contact was confirmed. The gas is of pipeline quality containing 96% methane.

During the summer a stepout well, King Christian N-06, was drilled about two miles southeast of the discovery, and gas was encountered in the same horizon as in the discovery well. The stepout was then deepened to 11,020



Panarctic Romulus C-42 on Ellesmere Island is the first oil discovery in the Arctic Islands

feet to evaluate deeper horizons, and in September it was plugged back and completed with large-diameter casing for better evaluation of the King Christian gas reservoir. Absolute open flow potential is calculated at 410 million cubic feet per day, on the basis of actual production rates measured at up to 188 million cubic feet per day. This qualifies King Christian N-06 as one of the most productive gas wells in North America.

In the Kristoffer Bay discovery, a substantial thickness of gas sand was cemented behind 5,300 feet of 9% inch intermediate casing. Production testing, however, has been deferred until after drilling to total depth of 12,500 feet for evaluation of deeper horizons.

On February 24, 1972 the well Panarctic Romulus C-42, which had been drilled to a depth of 3,425 feet, drill stem tested clean crude oil of 28.6° API gravity and 0.07% sulphur. This discovery is most significant as it is the first recovery of oil in the High Arctic where previously, except for minor oil shows, only gas had been encountered. The well is drilling ahead to test deeper prospective horizons.

Operations



H. J. STRAIN

Vice-President Operations

The Panarctic Operations Department is responsible for carrying out the Company's drilling program and providing supply, transportation and support for all of the Company's Arctic activities. The year 1971 was this Department's most active in all phases of its responsibility.

Four drilling rigs were under contract for most of 1971, compared with three rigs in 1970. The Company now has five rigs under contract. Approximately 63,000 feet of hole were drilled during 1971, compared with 40,000 feet in 1970 and 29,000 feet in 1969. Transportation and supply functions of the department were expanded to meet the requirements of this enlarged drilling program.

During 1971 it became increasingly apparent that the Company is making a major contribution to the rapid development of technology and general know-how required for efficient petroleum exploration in the High Arctic. This is demonstrated in particular by developments in drilling techniques.

DRILLING

Blowout Prevention and Control. Safe drilling operations in the Arctic Islands require not only better equipment but better trained and better alerted drilling personnel than are required in less difficult exploration areas such as Western Canada. The sedimentary sections in many structures in the Arctic are thick, reservoir rocks are often highly permeable and prolific. Reservoir pressures tend to be somewhat higher than the norm for Canada, and hydrocarbons can be encountered at relatively shallow depths. Drilling crews must therefore be prepared for occurrences outside the pattern of their previous experience, and they must be alert and trained to deal with them at any moment from the time a well is spudded.

Panarctic has developed a threefold program to cope with inherently difficult or dangerous drilling conditions. This involves the upgrading of blowout prevention equipment, the use of sophisticated early-detection instrumentation and devices, and the continued training of crews and supervisory personnel.

Extra blowout prevention equipment has been added to each Panarctic rig, along with improved actuating devices, and automatic over-pressure control valves. Each rig is also equipped with recorders, detection devices and alarms designed to give early indication of possible problems.

To ensure that crews and all other personnel make full and proper use of these systems and equipment, Panarctic in company with the drilling contractors puts all drilling crews and supervisory personnel through intensive blowout prevention courses. Further instruction is then continued at the rig sites.



The gas flare from Panarctic Tenneco et al King Christian N-06, marks the completion of one of the largest gas producers in North America. This well actually flowed at rates up to 188 million cubic feet per day.

Additionally a policy manual covering all phases of drilling procedures has been prepared by Panarctic prescribing standards of drilling practice. Under this policy, among other requirements, a blowout drill is conducted each time a crew returns for a tour of duty.

Air Drilling. Virtually every aspect of exploration drilling has been subjected to scrutiny, modification or improvement during Panarctic's time in the Arctic Islands. For instance, air-drilling methods have been adapted to Arctic conditions with encouraging success.

The use of air rather than mud as a drilling medium, allows penetration at rates two to three times faster. This procedure has been well proven elsewhere and had initially been evaluated by Panarctic at its Towson Point well in 1970. This test was successful, and air drilling proved its value again twice during 1971.

One-third of the 6,000-foot Garnier well on Somerset Island was drilled by air, and 6,200 feet of Cornwallis Island K-40

Deepest Wildcat. Each exploratory well Panarctic has drilled has contributed new knowledge and expertise. The Panarctic Fosheim N-27 gave valuable insight into the drilling of deep wells in extremely hard formations.

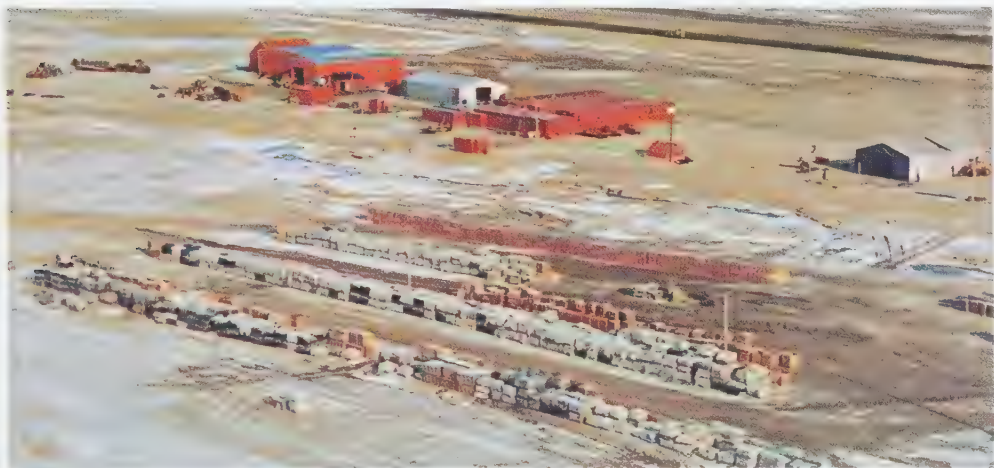
This well, at a north latitude of almost 80 degrees was until recently the most northerly wildcat in the world. (It has since been displaced by the Romulus well.) At a total depth of 14,022 feet when abandoned in December, it was also the deepest well yet drilled in the Islands. In the opinion of drillers and bit manufacturers, the well encountered some of the hardest materials ever drilled in Canada.

A total of 136 bits were used, including 23 diamond bits. The balance were the hardest available types of tungsten-carbide bits. Cumulative time on bottom, rotating, was 3,525 hours. Elapsed time from spud date to rig release was 267 days, 47 days over the original estimate.

Rig Versatility. The special difficulties imposed by Arctic Island drilling operations have resulted in the development of special rigs.



Commonwealth Hi Tower Rig No. 2 drilled the relief well for Drake and King Christian. Lightweight and versatile, it can be moved by helicopter.



In August some 4500 tons of supplies and a two million gallon fuel storage facility were located at Rea Point, headquarters for Panarctic's Arctic operations.

well was drilled in the same manner, making it possible to establish an Arctic Islands speed record for drilling to 10,000 feet.

While air-drilling methods cannot be employed when water-bearing zones are encountered, they are expected to prove extremely effective in drilling the harder water-free formations outside the Sverdrup Basin.

Commonwealth Hi-Tower Rig No. 2, for instance, has demonstrated its versatility on a number of occasions. Its advantage lies in its light weight and ease of transport. It can be moved by helicopter even when the ground is thawed. A slim-hole rig capable of being broken into sections, it proved its effectiveness in 1970 when it was moved by helicopter to kill the Drake Point wild well. In the same year it was moved quickly by Hercules to drill the King Christian relief well.



Weather information from all Panarctic bases helps Government weather stations develop accurate forecasts, vital to Panarctic's flight operations

In 1971 it proved its worth again when no site for a Hercules airstrip could be located near the proposed Garnier wildcat on Somerset Island. A strip was improvised by clearing the ice on a small lake. The rig was then moved in from Resolute Bay by two Bristol aircraft and a helicopter.



Safe drilling operations in the Arctic require not only better equipment but better trained and alerted personnel.

In contrast, but still demonstrating versatility, is Adeco rig No. 4 which is a large-capacity rig, transportable by helicopter, and designed in particular to drill deep wells in mountainous or otherwise inaccessible locations. The most highly designed, heavy-capacity rig in the Arctic Islands at present is Commonwealth Hi-Tower Rig No. 3 which owes its effectiveness to experimentation and the accumulation of experience in the Arctic Islands.

Rig Moves. While the versatility of drilling rigs has contributed substantially to Panarctic's best exploratory drilling year yet, the methods developed to move rigs have made an equally useful contribution. The key to the swift establishment of a new drilling operation lies in careful preplanning well in advance of the move, the efficient establishment of an advance camp and the careful preparation of the drill site prior to the delivery of the rig.

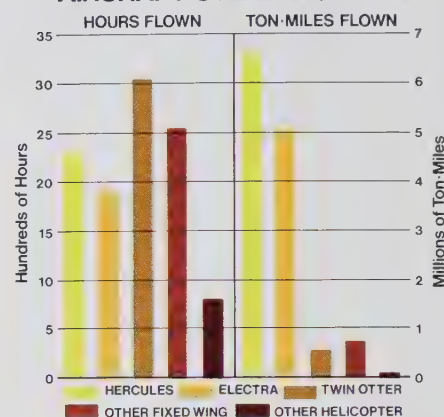
Two new rigs were moved in by Hercules aircraft from Yellowknife, one to King Christian and the other to Ellesmere Island. Hercules were also used for five other inter-island rig moves.

The move from Lougheed Island to the Dumbbells location on Ellef Ringnes Island, involving 76 trips by Hercules, was completed in 11 days — a record for moving a rig of this size. It is Panarctic's fastest and most efficient move to date, and it was achieved in total Arctic darkness.

Unfortunately, difficulties posed by poor flying weather in the early fall of 1971 caused the move from Cornwallis Island to Kristoffer Bay and the move from King Christian to Brock Island to take approximately five weeks each. First there was an enforced wait until airstrips were frozen hard enough to take heavy aircraft. Then there was a period of fast-dropping temperatures and large areas of open water offshore, which produced dense fog lasting well into winter.

At the end of 1971 Panarctic made an overland rig move between drilling locations, and it was an extremely successful application of the lessons in planning which the Company had learned in earlier moves. This was the 40-mile move from Fosheim to Romulus, made by trucks in the total darkness of Arctic winter. An advance camp had been set up at the new location and drilling supplies and fuel stockpiled during the summer sealift to Ellesmere Island. The route was well marked, and the operation was co-ordinated by radio, so that assistance could be sent immediately to any vehicle in difficulty. It will be possible to use the know-how perfected by this success in planning and executing several rig moves scheduled for 1972. Thanks to the

AIRCRAFT UTILIZATION-1971



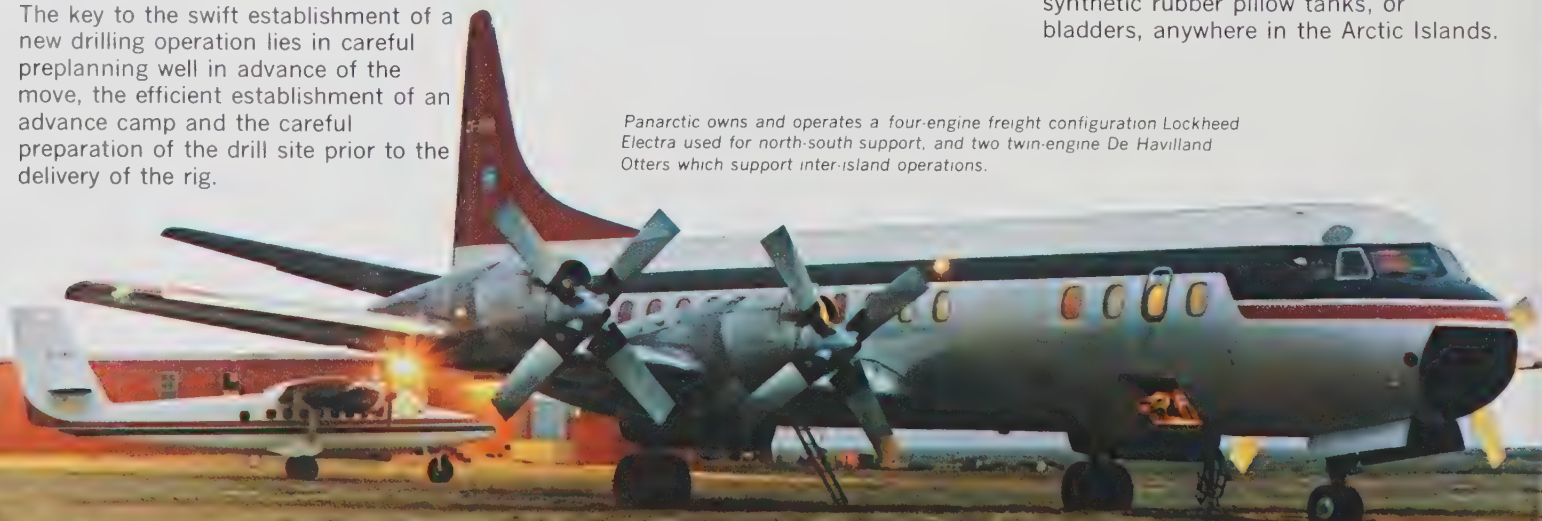
proximity of proposed locations to wildcats currently being drilled, moves following the Fosheim-Romulus pattern are expected to effect considerable savings in time and money.

SUPPLY AND TRANSPORTATION

Arctic Base Camp. Panarctic's base camp at Rea Point was more than ever the focus of supply and support for field operations during 1971. In addition to serving drilling sites, Rea Point served as a base for seismic and field geology operations for much of the year. The camp was fully utilized, and improvements were made which will further increase its usefulness.

Apart from general improvements to the camp as a whole and to the vehicle repair shop in particular, storage tents were used for the first time to protect drilling expendables brought in during the sealift. A "bladder farm" was installed on the beach for the fuel brought in by tanker. With a capacity of almost two million gallons this is the largest assemblage of nylon reinforced synthetic rubber pillow tanks, or bladders, anywhere in the Arctic Islands.

Panarctic owns and operates a four-engine freight configuration Lockheed Electra used for north-south support, and two twin-engine De Havilland Otters which support inter-island operations.



The two most significant aspects of Rea Point's place in the scheme of operations have to do with radio communication and flying. In both areas Rea Point proved itself again last year.

The base has developed rapidly as a communications centre. Weather reports are received from all rigs 12 times every day. This information, combined with reports from other points, helps government weather stations develop accurate forecasts of Arctic Islands weather, which in turn aid materially in scheduling inter-island flights (most of which are made by small aircraft). Accurate weather information and forecasts are equally vital to the operation of the Company's Electra, which makes a return flight out of Edmonton every second day with crew changes and freight.

Other electronic facilities, including non-directional beacon, V.O.R., continuous H.F. and V.H.F. radio service, make Rea Point the best-equipped airstrip in the Arctic Islands. These aids are made even more effective by the obstacle-free runway approaches, one of the reasons for which this site was selected.

The 5,000-foot sand runway stood up to Electra and Hercules traffic all summer, thus eliminating the need, experienced in 1969 and 1970, to open nearby Sherard Bay as an alternate summer airstrip.

Sealift. Panarctic's largest and most successful sealift was completed in September. Ice conditions were the best in many years, and there were large areas of open water. Two ships, Sir John Crosbie and Percy M. Crosbie, delivered 4,500 tons of drilling supplies to Rea Point. The tanker Edouard Simard discharged one million gallons of fuel at the Slidre Fiord bladder farm near Eureka, then carried on to Rea Point and delivered 1.8 million gallons of turbo and diesel fuel into storage facilities there.

All ships were unloaded in record time, Percy M. Crosbie in four days and Sir John Crosbie in two. Simard discharged one million gallons at Slidre in 13 hours and 1.8 million gallons at Rea in just 21 hours. In addition, some 350 tons of dry cargo were taken to Eureka on a ship chartered by the Ministry of Transport, and another 400 tons (mainly casing, cement and mud materials) were taken to Resolute in a vessel chartered by Cardwell Supply.

All ships used in the 1971 sealift were of Canadian registry, and virtually all the supplies were purchased in Canada — a substantial portion of them in Eastern Canada.

Company Aircraft. The company owns two De Havilland Twin Otters, which flew a total of 3050 hours in support of drilling and seismic operations during 1971, compared with 2477 hours during 1970. As all wellsite airstrips remained sufficiently firm for use by Twin Otters throughout the summer of 1971, the use of helicopters was virtually eliminated.

The Otters were flown by company pilots for the entire year. Staff operation has resulted not only in high utilization of the aircraft but also in substantial savings compared with former contract operation.

The Panarctic Lockheed Electra completed its second successful year of operations, and in December the Company exercised its option to purchase this aircraft. Flight crews have been hired to replace those who formerly operated the aircraft under contract. The main use of this aircraft during 1971 was to haul passengers and freight between Edmonton and the various drilling sites. Freight and fuel movements from the Rea Point base camp to the drilling rigs were also undertaken. A total of 7350 passengers and 2100 tons of freight was carried during 1971, compared with 5803 passengers and 2900 tons of freight in 1970.

Contract Aircraft. Various aircraft are chartered for personnel and freight movements which cannot be handled by Company aircraft. The Lockheed Hercules is the type most frequently employed in this way, and is used to



In the summer of 1971 three ships delivered fuel and drilling supplies to two Arctic locations. Ice conditions for this year's sealift were the best to date

move heavy freight and bulk fuel from Rea Point and Resolute to the drilling sites. In addition, most major rig components are either too heavy or too bulky to be carried by any other aircraft available. Hercules hours flown for Panarctic in 1971 totalled 2100, compared with 1900 in 1970. Large amounts of Bristol and DC-3 time were also chartered, mainly in support of drilling operations on King Christian Island during the summer and of seismic operations during the spring and fall. Approximately 770 Bristol hours and 1200 DC-3 hours were flown during the year.

Casual charter of Twin Otters, single-engine Otters and other small aircraft was required intermittently. Two small helicopters were used for short periods in support of seismic and surface geological parties.

Land and Administration



R. G. S. CURRIE

Vice-President
Land & Administration

LAND HOLDINGS

The Company's land holdings, aggregating over 60 million gross Permit acres, are all located in the Canadian Arctic Islands.

Original farmin agreements from a large number of companies provided Panarctic with the opportunity to earn varying interests in 45.1 million gross

Permit acres subject to certain specific obligations and options. By the end of 1967 the Company had, by direct acquisition, added 2.5 million gross acres, so that with the commencement of field operations early in 1968 acreage holdings amounted to 47.6 million. From that time to the present, further acquisitions both direct and by farmin, and for different interests, amounted to 12.8 million gross acres, bringing total current holdings to 60.4 million gross Permit acres.

Panarctic's rights to earn under its original farmins were based on undertakings to expend specified amounts of money, undertakings to drill certain obligatory wells and options to drill several earning wells. The undertakings to expend monies have been fulfilled and all the obligatory wells are now being satisfied. Acreage being earned aggregates 42.3 million net Permit acres.

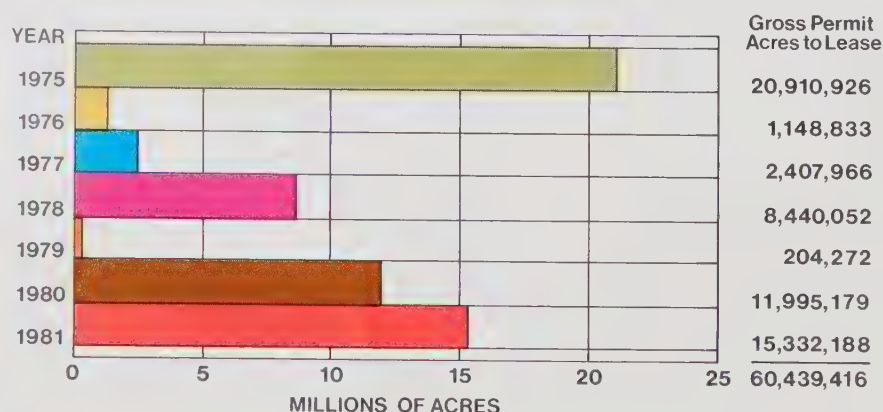
The Company can earn an additional 3.6 million net Permit acres by drilling seven more wells. Two of these wells are scheduled to be drilled under farmouts to other companies and three others are in the advanced planning stage.

Initially the Company's exploration program focused attention on meeting contractual farmin obligations. However, land management requirements are of equal importance and are now assuming the focus of attention. Many of the Company's Permits will be entering their final year in 1974 and prior to the expiry dates in 1975, leases will have to be selected out of these Permits. In order to make the most intelligent selection of leases, maximum geological and other exploration information must be available. The Company's exploration program has therefore been designed not only to meet contractual commitments but also to obtain maximum information essential for lease selection. In some respects, the meeting of this latter objective has had to be hurried because seven years had elapsed in the life of some of these Permits before Panarctic commenced exploration.

In designing its exploration program Panarctic is availing itself of three principal sources of exploration expenditures; its own internally budgeted drilling program, the drilling program under the Gas Development Arrangement with the four U.S. gas companies, and farmouts to other companies. In total, the Company has negotiated six farmout agreements providing for 1,300 miles of seismograph survey and the drilling of 21 exploratory wells. Farmees hold options to drill an additional eight exploratory wells. Depending upon the number of wells drilled, it is estimated that \$50 to \$75 million of exploratory work will be done on Company lands under these farmouts over the next five years.

If all wells are drilled and all farmout obligations fulfilled, the farmees will earn a total of 3.6 million net Permit acres. During the period that the Company has been arranging farmouts, land acquisitions exceed land which may be relinquished under farmouts, by 8.7 million net Permit acres, thus maintaining Panarctic as the leading landholder in Canada's Arctic Islands.

PERMIT CONVERSION DATES



ACREAGE COMMITTED TO PANARCTIC

ORIGINAL AGREEMENTS

	Gross Acreage Committed	Maximum Net Acreage Earnable	Net Acreage Earned To Date
Acroll Oil & Gas Ltd. (3 agreements)	352,569	352,569	352,569
Alminex Limited	1,986,823	1,688,799	1,688,799
Ashland Oil Canada Limited	1,316,547	1,053,238	1,053,238
Bankeno Mines Limited & Cominco Ltd.	3,637,783	2,910,227	2,910,227
Bankeno Mines Limited & Cominco Ltd. et al	1,920,934	1,536,747	1,536,747
BP Exploration Canada Limited	3,297,362	2,637,890	2,637,890
Canada Southern Petroleum Ltd.	709,135	567,308	567,308
Canada Southern Petroleum Ltd. & BP Exploration Canada Limited	62,650	50,120	50,120
Canada Southern Petroleum Ltd., Canadian Clark Oil Ltd. & Skelly Oil Canada Ltd.	57,210	45,768	45,768
Canadian Homestead Oils Limited	1,225,652	1,041,805	1,041,805
Canadian Industrial Gas & Oil Ltd.	822,704	699,299	699,299
Canadian-Montana Gas Company Limited	495,398	396,318	396,318
Consumers' Co-operative Refineries Limited	1,482,544	1,260,162	1,260,162
Dome Petroleum Limited	2,616,732	1,216,020	510,937
Domex Group	4,030,395	3,022,796	3,022,796
Elf Exploration and Production Canada Ltd.	2,327,187	1,861,750	
Francana Oil & Gas Ltd.	1,779,247	1,512,360	1,512,360
Great Plains Oil & Gas Ltd. et al	3,863,359	2,129,530	1,262,298
Lassiter Kuma Oils Ltd.	722,637	650,373	650,373
Norpet Oil & Gas Ltd.	449,365	381,961	381,961
Northwest Gas & Oil Exploration Co.	85,490	68,392	68,392
Pembina Pipe Line Ltd.	660,983	528,786	528,786
Plains Petroleums Limited et al	1,303,878	873,598	873,598
Prairie Oil Royalties Company Ltd.	1,526,214	1,182,816	1,182,816
Standard Oil Company of British Columbia Limited	960,086	160,018	160,018
Thouvenelle B.E.	162,663	138,264	138,264
Triceetee Group	3,687,097	2,949,678	2,949,678
United Canso Oil & Gas Ltd.	2,783,731	1,997,553	1,997,553
Western Minerals Ltd.	792,620	713,358	713,358
SUB TOTAL	45,118,995	33,627,503	30,193,438

SUBSEQUENT ACQUISITIONS

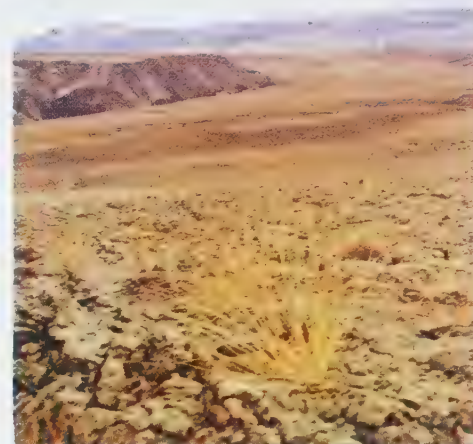
Acroll Oil & Gas Ltd. et al	60,749	30,374	
Axel Heiberg Oil Company et al	50,831	12,708	12,708
Canada Southern Petroleum Ltd.	3,650,607	1,825,303	1,825,303
Canadian Homestead Oils Limited et al	30,420	15,210	15,210
Magnorth Petroleum Ltd.	405,707	108,799	
Pan Ocean (Canada) Ltd. et al	1,294,139	657,149	657,149
Sunoco E & P Limited et al	143,369	17,204	
Thouvenelle B.E.	100,466	85,397	85,397
Zorayda Oil Co. Ltd. et al	40,529	10,132	10,132
Panarctic Oils Ltd. wholly owned lands	9,543,604	9,543,604	9,543,604
SUB TOTAL	15,320,421	12,305,880	12,149,503
GRAND TOTAL	60,439,416	45,933,383	42,342,941 *

Panarctic has made farmout arrangements with Sunoco E & P Limited, BP Oil & Gas Ltd., Deminex (Canada) Ltd., Gulf Oil Canada Limited, Imperial Oil Limited and Total Petroleum (North America) Ltd.

Panarctic land holdings cover a vast area all located north of the 71st parallel. Panarctic's most southerly Permit on Banks Island is 1,328 miles north of Calgary, while the most northerly Permit located on Ellesmere Island at about 80° north latitude is only 600 miles from the North Pole. In total, Panarctic holds interest ranging from 16% to 100% in 1,362 Permits varying in size from 82,470 acres to 20,735 acres. Petroleum land management can be complex and costly. The Permits in the portfolio have different combinations of interests, different anniversary dates, different work requirements and work credit provisions. And there are frequent changes. To keep track of all this, to ensure that credits are applied, to arrange for Permit renewals and to claim earned interests by conventional clerical methods would be most difficult.

Panarctic has, therefore, developed a land management computer program. This pioneering venture has already proved its worth, and maximum benefit is still to come. Once all earning requirements have been met, Panarctic will be involved in joint operations with 68 other companies, and will be required to do the land bookkeeping for all. Without the computer program this task would burden the Company with a massive, costly and wasteful use of manpower.

Panarctic has the responsibility of exploring and protecting some 60 million acres in the Arctic Islands

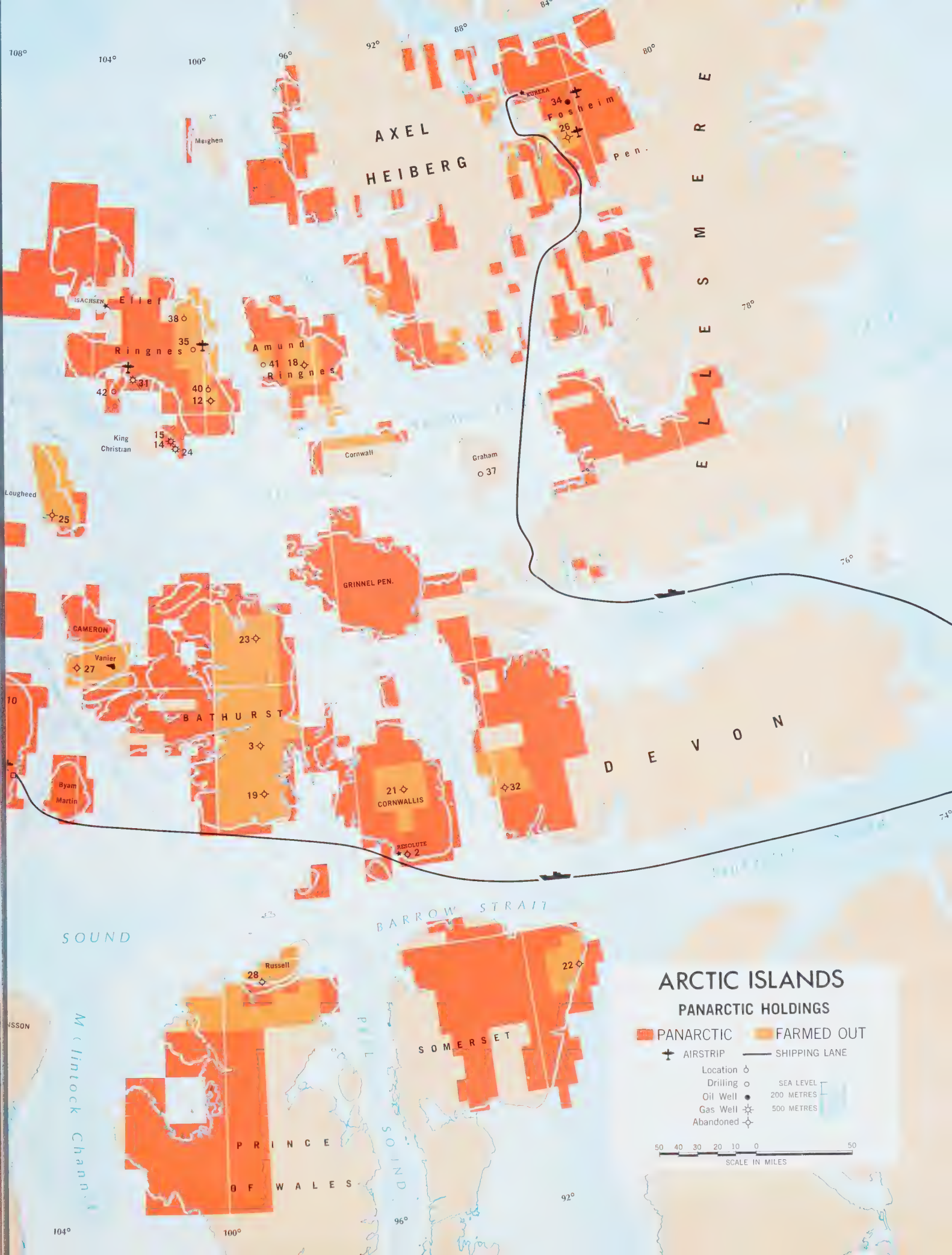


* SUBJECT TO 10% NET PROFITS AGREEMENTS

ARCTIC OCEAN

Well Name	Depth	Status	R R Date
1 Dome et al Winter Harbour #1	12,541	Abandoned	April 1962
2 Lobitos et al Cornwalis Resolute B L 41	4,841	Abandoned	Dec 1963
3 Dominion Explorers Canoe et al Bathurst Cape J 14	10,000	Abandoned	Feb 1964
4 Panarctic Sandy Point L 46	6,895	Abandoned	July 1969
5 Panarctic Marie Bay D 02	4,175	Abandoned	Sept 1969
6 Panarctic Drake Point N 67	8,454	Gas Discovery Blew Wild Killed by K 67	July 1969 Sept 1970
7 Panarctic Drake Point L 67	11,111	Gas Discovery	Nov 1969
8 Panarctic Drake Point L 67/A Plugger back directional et al well (Formerly K 67/A directional)	11,111	Relief hole unsuccessful now Capped Gas Well	May 1970
9 Panarctic Drake Point K 67	11,111	Relief hole Killed by K 67	Nov 1970
10 Panarctic Towson Point F 63	11,111	Abandoned	June 1970
11 EHF Cape Norem A 6	11,111	Abandoned	Aug 1970
12 Panarctic Hoodoo Dome H 3	11,072	Abandoned	Aug 1970
13 Panarctic Homestead Hecla J 60	11,864	Abandoned	Sept 1970
14 Panarctic K ne Christian D 18	11,111	Gas Discovery Killed by D 18A & Abandoned	Oct 1970 Jan 1971
15 Panarctic K ne Christ an D 18A	11,111	Completed as Capped Gas Well	March 1971
16 EHF Wilkins E 61	11,111	Abandoned	Jan 1971
17 Sun K R Panarctic Kitson R C 71	11,111	Abandoned	Feb 1971
18 Panarctic Amund Central Dome H 40	11,111	Abandoned	April 1971
19 Sun K R Panarctic Allison R N 12	11,111	Abandoned	March 1971
20 EHF Jameson Bay	11,111	Abandoned	May 1971
21 Panarctic Dem ney Cornwalis Centra l Dome K 41	11,111	Abandoned	Aug 1971
22 Panarctic Dem ney Garnier D 21	11,111	Abandoned	July 1971
23 Sun Panarctic Young J 2	11,111	Abandoned	July 1971
24 Panarctic K ne Christian N 06	11,111	Gas Well	Sept 1971
25 Sun K R Panarctic Savballe e Bay C 15	11,111	Abandoned	Nov 1971
26 Panarctic Fosheim N 27	11,111	Abandoned	Dec 1971
27 BP et al Panarctic Watson J 2	11,111	Abandoned	Dec 1971
28 Sun Panarctic Russe L H 92	11,111	Abandoned	Jan 1972
29 BP et al Panarctic Satellite F 68	12,075	Abandoned	May 1972
30 EHF et al Storverson Bay A 15	11,111	Abandoned	Dec 1971
31 Panarctic Tenneco et al Kristoffer Bay G 06	11,111	Gas Discovery	March 1972
32 Imp IOE Panarctic et al Devon E 45	6,030	Abandoned	March 1972
33 Panarctic B P Skelly Tenneco et al	11,111	Abandoned	March 1972
34 Panarctic Romulus C 4	12,906	Abandoned	March 1972
35 Panarctic Gulf Dumbells E 49	11,001	Oil Discovery Drilling	March 1972
36 EHF Nanuk D 71	11,111	Abandoned	March 1972
37 BP et al Graham C 1	11,111	Abandoned	March 1972
38 Panarctic Gulf Helicopter J 12	11,111	Abandoned	March 1972
39 EHF Um nnae H 02	11,111	Abandoned	March 1972
40 Imp Panarctic Dome et al Hoodoo L 41	11,111	Location	April 1972
41 Panarctic Gulf West Amund I 44	11,111	Abandoned	April 1972
42 Panarctic Tenneco et al Thor P	11,111	Oil Discovery Drilling	April 1972
43 Panarctic Brock	11,111	Abandoned	April 1972
44 Panarctic Tenneco et al PQR Lake Point F 11	11,111	Moving In	April 1972







Panarctic's environmental task force inspects company operations to guard against both physical and aesthetic damage to the ecology

ENVIRONMENTAL PROTECTION

Panarctic is dedicated to carrying out its operations in the Arctic Islands in a manner designed to guard against both physical and aesthetic damage to the ecology. This is recognized as a corporate responsibility, which Panarctic Oils Ltd. readily accepts.

In 1971 Panarctic set up an environmental task force to inspect the Company's operations. The force is headed by an experienced biologist and an Arctic expert recruited from the staff of an Alberta University. Also included are an industrial photographer, and a senior Panarctic representative. The objectives are to determine possible ecological upsets, aesthetic disturbances, and physical damage caused by Company operations, to make recommendations for repair and restoration wherever required, and to make changes in operating practices wherever ecological safeguards are indicated.

The task force made two inspections during the year, covering all of the Company's past operations, as well as its current activities and areas in which work is planned. Following the first trip the task force recommended cleanup work where necessary, which work was undertaken by the Company's

Operations Department. A second inspection was then made to assure that the Company had left the sites that it occupied in essentially the same condition in which it found them. A complete documentation of the investigations, both in written and photographic form was made and a list of specific and generalized recommendations was drawn up. Copies of these reports have been supplied to the Department of Indian Affairs and Northern Development and to the Arctic Petroleum Operators Association.

The task force concluded that certain cleanup work was still desirable. After further cleanup work, it reported that all of the sites previously occupied by Panarctic had been suitably restored except for a few areas which still served

*Arctic Hare (*Lepus arcticus*) noted for long, hairy ears. Among the largest of the tundra hares, an average male may weigh up to 11 lbs*



as storage points and the drilling locations at Drake Point and King Christian where it had not been possible to effect complete cleanup prior to freeze-up last fall. This work will be completed during the forthcoming year.

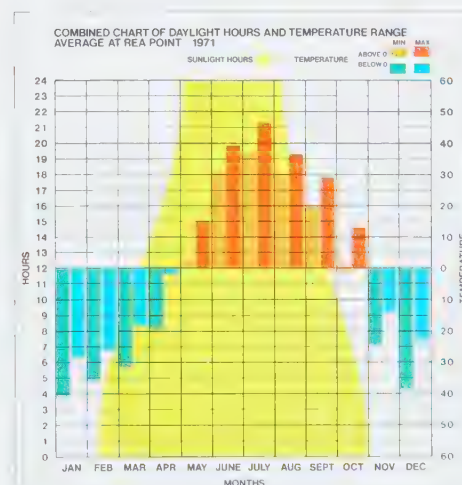
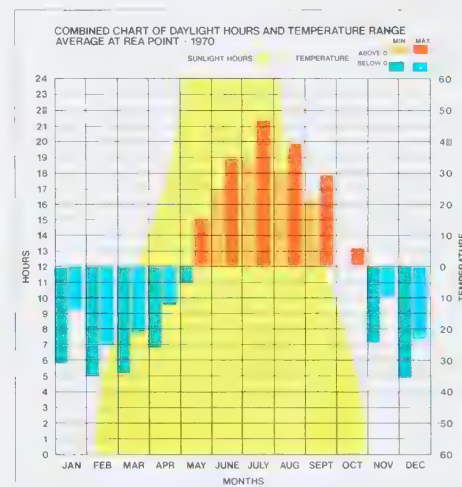
Elsewhere terrain damage has been minimal, and Company operations are currently being carried out in an efficient manner designed to prevent ecological damage and to restore the terrain where disturbed.

Panarctic is satisfied with the manner in which its Arctic operations are being conducted. It is the intention of the Company to continue with this policy of environmental protection and cleanup, improving the procedures wherever indicated.

PERSONNEL

On January 1, 1971 Panarctic took over complete responsibility for its own administration and operation from the previous contract operator. During the year the Company completed the task of recruiting and organizing the experienced personnel necessary to the execution of its planned programs. The process of integration and adjustment can now be considered virtually complete.

In addition to management and technical staff based in Calgary, Panarctic has drilling supervisors, aircraft flight crews and certain other trained technicians based in the Arctic. All other Arctic personnel are provided by drilling contractors, contract seismograph operators and other contractors.





The Company's requirements call for more than normal oil field experience since in this remote and often inaccessible area, a Company foreman must be totally responsible and self sufficient. The Company's Rea Point base and each drilling location are directed by Company foremen, and Panarctic has had excellent success in recruiting highly qualified and reliable individuals. Panarctic has taken over the maintenance of mobile equipment based in the Arctic and has recruited a competent staff of heavy-duty mechanics.

In connection with the Company's program to provide air support to and within the Arctic Islands, the Company has recruited and trained air crews, maintenance engineers and loadmasters for the operation of the Company's Electra and Twin Otter aircraft. Major long-term maintenance checks are performed under contract in Calgary.

NATIVE EMPLOYMENT

From inception, Panarctic has pursued the policy of employing northern residents. The Company's operations, however, are conducted far to the north and west of any significant Eskimo settlement and out of the path of regular air service, so that recruitment and transportation between the settlements and Panarctic jobsites have posed difficult problems. Recently the Company improved on the system of recruitment and is now transporting Eskimo employees on an airlift shuttle service between the settlements of Pond Inlet and Arctic Bay on Baffin Island and the various jobsites. Panarctic's own aircraft provide the shuttle transportation.

Northern residents are employed on the same wage scale and working schedule as the rest of Panarctic's work force; 20 days on the job followed by 10 days' leave. The majority of the Eskimo work force is employed as labourers. However, as each individual shows aptitude and proficiency in more skilled work, he is given the opportunity to advance. Some who have had continued experience with the Company have become mechanic's helpers, equipment operators and crew members on the drilling rigs. To date the program has worked with considerable success and there is every reason to believe that it will continue to do so.



Financial

Panarctic's exploration and drilling program was expanded during 1971 as a result of exploration work on its lands carried out under Farmout Agreements made to others and under the Gas Development Agreement announced in the early summer. Exploration expenditures in the year for the account of Panarctic participants were \$11,175,949 on drilling, exploration, acquisition of capital equipment and administrative costs while an additional \$12,420,503 provided by others was expended under the direct administration of the Panarctic staff for a total gross expenditure of \$23,596,452. Not included in these amounts are expenditures for seismic work, six test wells completed in 1971, and Farmout wells being drilled at year end by Farmees under their own supervision.

During 1971 Panarctic's shareholders subscribed for an additional \$26,000,000 of preferred shares bringing to \$76,126,300 the total investment committed since 1967 to the Program. At December 31, 1971 \$3,700,000 of the Government of Canada's 45% share of this latest expansion had been received, with the balance of \$8,000,000 being receivable during 1972. Panarctic's industry participants have committed as their share of the expansion to make additional exploration expenditures of \$14,300,000 on Company lands scheduled for 1972.

Gas Development Agreement

Of particular significance during the 1971 fiscal year was the signing of a Gas Development Agreement with Tenneco Oil & Minerals, Ltd., Columbia Gas Development of Canada Ltd., Texas Eastern Canada Ltd. and Northern

Natural Gas Company. Under this agreement the gas company partners undertake to provide \$75,000,000 for drilling operations on Panarctic lands over the next five years. Tenneco will invest one-half of the funds committed and the other three gas companies will invest the remainder. Of these funds, \$50,000,000 will be provided exclusively for exploration drilling and up to \$25,000,000 will be provided for delineation drilling as and when required to confirm the extent of gas reserves indicated by major gas discoveries on Panarctic lands. The agreement also provides that when a market outlet for gas is assured then under circumstances provided in the agreement and, if requested by Panarctic, the gas company partners will carry out the drilling of development wells to deliver the gas in marketable quantities, completing such work upon completion of the marketing facilities.

When production commences the gas company partners will recover their investment, plus a return not to exceed 7% per annum on the unrecovered balance, from 25% of Panarctic's net revenue at the wellhead from the sale of reserves developed under the agreement. If gas is sold to other than the gas company partners or their affiliated companies, repayment is from 33⅓% of net gas revenues therefrom. Under certain circumstances in which a well drilled by the gas company partners discovers an oilfield, they can receive 10% of Panarctic's net wellhead oil revenue until recovery is completed. Upon recovery of all investment and return thereof, the gas company partners will have a 1% interest in the reserves developed under the agreement. The agreement is for an initial term of five years with provision for five annual extensions upon the commitment to expend \$10,000,000 in exploration drilling and up to \$5,000,000 on delineation drilling respectively for each year of extension.



J. G. ARMSTRONG
Treasurer & Comptroller

The gas company partners will have a first right to purchase gas developed under this agreement and approved for export from Canada at a price or prices to be negotiated at that time. This right extends for five years beyond the initial term or any extension thereof, and the accrual of return on investment ceases after such five years, if during the term, arrangements for marketing of gas are not proceeding. All parties acknowledge that all sales of gas for export from Canada are subject to the laws and regulations of Canada and specifically to the findings of the National Energy Board and the actions of the Governor in Council.

The agreement was effective May 1, 1971 and expenditures during 1971 by the gas company partners pursuant to this agreement totalled \$6,656,312.



**panarctic
oils ltd**



Balance Sheet

DECEMBER 31, 1971

ASSETS

	1971	1970
Current assets:		
Cash	\$ 33,437	\$ 207,390
Accounts receivable	1,054,831	803,343
Due from Panarctic Oil Operators Ltd.	623,440	—
Government of Canada cash grants to be made in 1972 (Note 1)	8,000,000	4,522,500
Estimated amount recoverable from insurance claims	—	1,184,692
Inventory of drilling supplies in the Arctic, at cost including freight.....	3,088,197	2,208,589
Prepaid insurance and sundry advances	23,468	104,204
	<u>12,823,373</u>	<u>9,030,718</u>
Investment in Alexbow Canada Ltd.:		
Shares, at cost.....	6	6
Advances	157,612	140,067
	<u>157,618</u>	<u>140,073</u>
Capital assets, at cost:		
Trucks and tracked vehicles	1,825,441	1,587,762
Furniture and office equipment	169,766	116,299
Aircraft.....	1,769,433	1,063,806
Barge	236,780	236,780
Camp and portable buildings	868,329	893,356
Storage facilities	1,101,933	621,301
Radio and navigational equipment	375,560	354,579
Other equipment	796,221	773,929
	<u>7,143,463</u>	<u>5,647,812</u>
Less: Accumulated depreciation (Note 4).....	3,164,667	2,256,387
	<u>3,978,796</u>	<u>3,391,425</u>
Petroleum and natural gas permits	107,041	68,984
Exploration expenditures (Note 3)	45,010,658	34,549,678
	<u>49,096,495</u>	<u>38,010,087</u>
Other assets:		
Exploration and drilling expenditures to be incurred by Panarctic Syndicate (Note 1) ...	14,774,850	7,527,500
Advance to Panarctic Syndicate	229,214	—
	<u>15,004,064</u>	<u>7,527,500</u>
	<u>\$77,081,550</u>	<u>\$54,708,378</u>

LIABILITIES

	1971	1970
Current liabilities:		
Bank loan (secured)	\$ 200,000	\$ 2,250,000
Accounts payable and accrued liabilities	755,249	753,092
Due to Panarctic Syndicate	—	1,579,035
	<u>955,249</u>	<u>4,582,127</u>
Shareholders' equity:		
Preferred shares (Note 1) —		
Authorized —		
7,600,000 6% non-cumulative redeemable		
preferred shares of a par value of		
\$10 each		
Issued —		
For an undertaking by the Government of Canada to		
make cash grants	3,420,000	34,200,000
For participants' exploration commitments	4,180,000	41,800,000
	<u>7,600,000</u>	<u>76,000,000</u>
Common shares (Note 1) —		
Authorized —		
1,500,000 shares of no par value		
Issued —		
For an undertaking by the		
Government of Canada to make		
cash grants	562,500	56,250
For participants' exploration commitments ..	687,500	68,750
For cash	13,005	1,301
	<u>1,263,005</u>	<u>126,301</u>
		<u>126,251</u>

APPROVED ON BEHALF OF THE BOARD:

Jim Taylor
Director

Chas. R. Hetherington
Director

\$77,081,550

\$54,708,378



Statement of Source and Application of Funds

FOR THE YEAR ENDED DECEMBER 31, 1971

	1971	1970
Source of funds:		
Issuance of capital stock (Note 1) —		
To the Government of Canada for an undertaking to make cash grants	\$11,700,000	\$13,533,750
To industry participants for exploration commitments	14,300,000	11,027,500
For cash	50	750
	<u>26,000,050</u>	<u>24,562,000</u>
Application of funds:		
Exploration expenditures	10,460,980	16,184,943
Less: Depreciation and other non-cash charges	<u>1,175,711</u>	<u>1,337,628</u>
	9,285,269	14,847,315
Purchase of capital assets (net)	1,763,082	1,689,553
Acquisition of petroleum and natural gas permits	38,057	—
Net increase in other assets	7,476,564	2,191,594
Advances to Alexbow Canada Ltd.	17,545	33,835
	<u>18,580,517</u>	<u>18,762,297</u>
Increase in working capital	<u>\$ 7,419,533</u>	<u>\$ 5,799,703</u>

Statement of Exploration Expenditures

CAPITALIZED TO DECEMBER 31, 1971

	1971	1970	From inception to December 31 1971
Geophysical	\$ 3,853,848	\$ 900,870	\$10,819,841
Geological	143,341	176,834	773,875
Drilling	4,519,625	12,491,276	26,357,310
Administrative and general	1,474,319	1,364,582	4,524,505
Interest income	(178,848)	(86,247)	(450,465)
Administrative costs recovered	(437,475)	—	(437,475)
Depreciation (Note 4)	1,086,170	1,337,628	3,423,067
	<u>\$10,460,980</u>	<u>\$16,184,943</u>	<u>\$45,010,658</u>



1. Share capital:

During the year the authorized share capital was increased from 5,000,000 to 7,600,000 6% non-cumulative redeemable preferred shares of a par value of \$10 each. The preferred shares may be redeemed at any time out of capital on payment of the amount paid up thereon, plus a premium of 6% and all dividends declared thereon and unpaid.

Industry participants have been issued shares of the Company (including 1,430,000 preferred shares issued in 1971), the consideration being an undertaking to incur expenditures of \$41,868,750 in the conduct of exploration operations on Company lands of which \$14,774,850 remains to be expended at December 31, 1971.

The Government of Canada has been issued shares of the Company (including 1,170,000 preferred shares issued in 1971) for an undertaking to make cash grants aggregating \$34,256,250 of which \$8,000,000 remains to be paid at December 31, 1971.

During the year 500 common shares at 10¢ per share were allotted and issued to employees of the Company under the employees' share incentive plan. As at December 31, 1971 2,000 common shares are reserved for future issuance to officers and employees.

2. Income taxes:

By agreement the Company has undertaken that it will not claim for income tax purposes expenditures which would otherwise be deductible under the Income Tax Act until the aggregate amounts of such expenditures, together with 45% of the Company's non-deductible amounts, is equal to the cash grants made by the Government of Canada. The Company has also undertaken to waive forever all claim to a deduction in respect of such allowable deductions.

3. Exploration expenditures:

The activities of the Company are in the exploratory stage and all expenses, less sundry income, have been capitalized, including exploration expenditures actually made by shareholders pursuant to the commitments referred to in Note

1; the Company is deemed to have earned no profit and sustained no loss and therefore no statement of profit and loss is submitted.

4. Capital assets:

During the year the Company determined that the useful life of capital assets operating under Arctic conditions was in excess of that originally estimated. Accordingly, depreciation rates in respect of certain assets were reduced effective January 1, 1971 resulting in a reduction of \$462,879 in the provision for depreciation for the year.

5. Statutory information:

During 1971 there were eighteen directors and nine officers (as defined by the Canada Corporations Act) of whom four were also directors.

No directors fees were paid in 1971 or 1970. Officers' remuneration for 1971 and 1970 amounted to \$156,000 and \$121,203 respectively.



Auditors' Report

*To the Shareholders of
Panarctic Oils Ltd.*

We have examined the balance sheet of Panarctic Oils Ltd. as at December 31, 1971 and the statements of exploration expenditures and source and application of funds for the year then ended. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion these financial statements present fairly the financial position of the Company as at

December 31, 1971 and the results of its operations and the source and application of its funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

As explained in Note 3 to the financial statements the Company's activities are still in the exploratory stage and all expenses, less income, have been capitalized from inception to December 31, 1971. The Company is deemed to have realized no profit and sustained no loss to December 31, 1971 and therefore no profit or loss account is submitted.

Price Waterhouse & Co.
Chartered Accountants

Participation and Capital Share Distribution

As at December 31, 1971

	Interest	Common Shares	Preferred Shares
Ashland Oil Canada Ltd.	.94865	11,857	72,097
Bankeno Mines Limited	2.25875	28,235	171,666
Bocadel Oil Corporation	4.51745	56,468	343,326
Bow Valley Industries Ltd.	2.25875	28,235	171,665
Campbell Red Lake Mines Limited	.40655	5,082	30,898
Canadian Industrial Gas & Oil Ltd.	.67760	8,470	51,498
Canadian Nickel Company Limited	4.51745	56,467	343,326
Canadian Scenic Oils Ltd.	.13555	1,695	10,302
Cominco Ltd.	9.03490	112,935	686,652
Conick Petroleum Ltd.	.27105	3,388	20,599
E. Connelly	.11295	1,412	8,584
Dome Mines Limited	.81315	10,164	61,800
Dome Petroleum Limited	4.06570	50,822	308,993
Giant Mascot Mines Limited	4.51745	56,468	343,326
Noranda Mines Limited	4.51745	56,468	343,326
PanCanadian Petroleum Limited	9.03490	112,935	686,652
Sigma Mines (Quebec) Limited	.13555	1,695	10,302
Thor Exploration Company Ltd.	4.51745	56,468	343,326
Westburne Petroleum & Minerals Limited	2.25870	28,235	171,662
Government of Canada	45.00000	562,497	3,420,000
Directors' Qualifying Shares	—	9	—
Other Shares	—	13,000	—
	100.00000%	1,263,005	7,600,000

Officers

Chairman of the Board
JOHN M. TAYLOR
PanCanadian Petroleum Limited.
Calgary, Alberta

Vice-Chairman
JOHN A. MacDONALD
Department of Public Works
Ottawa, Ontario

President
CHARLES R. HETHERINGTON
Panarctic Oils Ltd.
Calgary, Alberta

Executive Vice-President
R. J. ARMSTRONG
Cominco Ltd.
Vancouver, B.C.

Vice-President - Exploration
G. P. CROMBIE
Panarctic Oils Ltd.
Calgary, Alberta

Vice-President - Operations
H. J. STRAIN
Panarctic Oils Ltd.
Calgary, Alberta

*Vice-President - Land and
Administration*
R. G. S. CURRIE
Panarctic Oils Ltd.
Calgary, Alberta.

Treasurer & Comptroller
J. G. ARMSTRONG
Panarctic Oils Ltd.
Calgary, Alberta.

Secretary
F. R. MATTHEWS, Q.C.
MacKimmie Matthews
Calgary, Alberta



Directors



JOHN M. TAYLOR
Chairman of the Board
Panarctic Oils Ltd. and President
PanCanadian Petroleum Limited



CHAS. R. HETHERINGTON
President
Panarctic Oils Ltd.



R. J. ARMSTRONG
Executive Vice-President
Panarctic Oils Ltd. and Vice-President,
Exploration Cominco Ltd.



J. AUSTIN, Q.C.
Deputy Minister
Department of Energy, Mines and
Resources



F. E. BURNET
President
Cominco Ltd.



R. W. CAMPBELL
Chairman of the Board
PanCanadian Petroleum Limited



J. P. GALLAGHER
President
Dome Petroleum Limited



C. MARKS HINTON
President
Barber Oil Corporation



A. DIGBY HUNT
Assistant Deputy Minister for Northern Development
Department of Indian Affairs and
Northern Development



ERWIN A. JONAS
Vice-President
Thor Exploration Company Ltd.



JOHN A. MacDONALD
Vice-Chairman of the Board
Panarctic Oils Ltd. Deputy Minister
Department of Public Works



MARKOOSIE
Arctic Aircraft Pilot



J. W. McBEAN
President
Bankeno Mines Limited



D. C. MCGAVIN, Q.C.
General Solicitor and Assistant Secretary
The International Nickel Company of
Canada, Limited



H. BASIL ROBINSON
Deputy Minister
Department of Indian Affairs and
Northern Development



W. S. ROW
Executive Vice-President
Noranda Mines Limited



D. K. SEAMAN
President
Bow Valley Industries Ltd.



J. T. WANAMAKER
Investment Counsel



panarctic air ltd

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